

Closet talk Is moving Layer 3 and Layer 4 intelligence closer to your wiring closet and desktops smart or overkill? **PAGE 13.**

Home alone and dangerous Four companies share their secrets for securing teleworkers' offices. **PAGE 21.**

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July 8, 2002 ■ Volume 19, Number 27

SPECIAL SECTION THE FEDERAL AGENDA

How Uncle Sam's \$48 billion IT budget will shape networks of the future

The U.S. government is the world's largest buyer of network products and services. It's also one of the few buyers that hasn't been beaten down by the economy. In fact, if anything, Sept. 11 has increased pressure to spend. As Uncle Sam steps up investments in e-commerce, security and IP services, there's sure to be a ripple effect across the network industry. Here's an inside look.

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Firewall limits vex VoIP users

■ BY PHIL HOCHMUTH AND
TIM GREENE

While firewalls are the IT pro's favorite security tool, they can be troublesome for companies trying to deploy IP telephony over the Internet as many firewalls offer little or no support for voice-over-IP protocols.

Firewall vendors and those crafting standards are working to make firewalls operate effectively with the widely deployed H.323 protocol and the emerging Session Initiation Protocol (SIP), many users are skirting the issue by encrypting wide-area VoIP traffic and sending it over VPN tunnels for site-to-site and remote office connections. IT professionals say this method for running VoIP over a WAN keeps IP conversations secure. They also say it eliminates the risk



“Voice over IP on the Internet is certainly doable, but I wouldn't recommend it.”

Mike Shisko
Director of IT, Experio Solutions

of exposing a network to intruders, which comes with opening ports on a firewall to allow VoIP to flow through.

“Getting a firewall to understand voice or multimedia protocols, particularly H.323, is not simple,” says Joel Snyder, a senior partner at Opus One, a firm that tests network gear, and a *Network World* columnist. He says it requires the firewall to act as a proxy for the H.323 traffic.

“The H.323 proxy in the firewall has to dig deep into the H.323 protocol. It actually has to understand the whole protocol to know what IP addresses are going to talk, what ports, etc.,” Snyder says.

Without such proxy ability, the firewall would have to open ports for each call that is made, without determining whether the packets are legitimate.

See VoIP, page 8

WISHLIST

Customers advise Sun

■ BY DENI CONNOR

Sun's Solaris operating system has a home in one of every two IT shops, the company's servers generate more revenue than Unix systems giant IBM, and its workstations stand second only to Dell.

Sun matters a lot to network executives, so *Network World* talked to a cross section of the company's customers and asked what they would like to see from

the vendor. Heading their wish lists are a plea for price relief on servers and workstations, and increased support for less-expensive X86-based hardware. In addition, customers question Sun's continued role in the storage market and what's seen as lip service support for Linux.

Here are the specifics:

1. Lower the prices, please.
Ron Rose, CIO of Price

line.com, an online e-commerce service in Norwalk, Conn., puts his request simply: “I'd like Sun to give us all the wonderful tools and products they have at PC prices.”

See Sun, page 10

More online!

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MICHAEL WITTE

NetworkWorld

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HP's Evo D510 e-pc has a tool-less entry design. See **Cool Tools** for more info on page 30.

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Interactive

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DocFinder: 1041

Government network security

See what the feds are doing to bolster the security of their networks.

DocFinder: 1137

Forum: Should software pirates do time?

Industry leaders on both sides of this issue debate whether the punishment fits the crime. Jump in with your thoughts.

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Seminars and Events

VoIP training comes to you

Looking for a cost-effective way to train your team? Trying to widen your department's skill set on a shrinking budget? With equipment provided by Avaya, NetSmart's on-site voice-over-IP training is the perfect way to educate your staff without leaving the office.

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E-AUTHENTICATION

Getting plugged in to E-Government

Ambitious program comprises two dozen projects, including e-Authentication effort aimed at establishing online trust relationships. **PAGE 36.**



INTERVIEW

DISA targets net flexibility

The principal director of the Defense Information Systems Network — the Department of Defense's backbone — talks about tying management to security. **PAGE 49.**



INTERNET DISRUPTION

'Net access denied

A look at how a Web shutdown crippled the Department of the Interior. **PAGE 51.**

Columnists

Compendium

Talk like an Egyptian
Fusion Executive Editor Adam Gaffin reports that when everything seems like hieroglyphics, there's a site just for you.

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Help Desk

Accessing NetWare remotely
Columnist Ron Nutter helps a user who doesn't want to upgrade to NetWare 5 or 6 just to get to his server.

DocFinder: 1140

SOHO tech

What is the price of lost files?
Columnist James Gaskin introduces you to a product that ensures your files will always be at your fingertips.

DocFinder: 1141

View from The Edge

WorldCom bomb
The Edge Managing Editor Jim Duffy says the WorldCom accounting crisis will have a painful, far-reaching effect.

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News

Bits

company. But overall these attacks were less aggressive, according to Riptech. Code Red and Nimda worm activity is abating somewhat, accounting for 44% of overall attack activity as opposed to 63% during the previous six-month period.

IBM sells storage vendor Mylex

■ Storage vendor LSI Logic will acquire Mylex from IBM for an undisclosed amount in cash. Mylex is a business unit of IBM that makes RAID controllers, storage subsystems and storage components. Acquiring Mylex will give LSI Logic products for the entry-level storage market, including PCI-RAID. LSI makes storage chips, digital signal processors, and stor-

Vulnerabilities reported in BIND, BSD

■ The CERT Coordination Center last week warned of another flaw in the software that supports the Internet's DNS and said systems connected to the Internet could be at risk. According to CERT, the Berkeley Internet Name Domain and the Berkeley Software Distribution operating system have buffer overflow vulnerabilities in their DNS resolver libraries that could let an attacker take over the servers running the affected software. The bug can affect server operating systems, DNS and e-mail servers, and switches and routers, which could make patching the software difficult. The vulnerability also may be present in applications that have embedded DNS resolver libraries. No exploits of the vulnerabilities have been reported.

Akamai gets injunction against Digital Island

■ A federal judge in Boston has granted Akamai Technologies its motion for a permanent injunction against Digital Island to stop it from running its Footprint content delivery service. Akamai had claimed the service infringed on one of its patents. However, Cable & Wireless, which now owns Digital Island, says the ruling has no effect on the company or its customers because the injunction was aimed at a technology no longer used within the Footprint service. Akamai, on the other hand, said in a statement that it believes Digital Island "cannot effectively operate its content delivery service without violating these key claims of the patent." Judge Rya Zobel will issue the final wording of the injunction, Akamai says.

Riptech reports rise in cyber attacks

■ Managed security services provider Riptech, which has been publishing semiannual summaries of attacks against its customer base as a way to benchmark threat activity, last week released its cyber-attack analysis for the first half of the year. Riptech says that through its monitoring for clients, it observed 180,000 cyber attacks, a 28% increase over the period six months earlier, with an average of 32 attacks per week (up from 25) per

■ The Good The Bad The Ugly



Net executives of the future.

IBM Lotus recently wrapped up its EXITE Camp in Cambridge, Mass. This is one of 25 such camps IBM is running around the world to spark the interest of roughly 750 seventh- and eighth-grade girls in math, science and technology. Activities include building Web sites and programming robots. No word on whether marshmallows will be toasted. ➤



How to ruin a vacation.

In a recent telephone survey of 255 business executives, connectivity products and peripherals maker logear found that 82% couldn't resist checking e-mail, contacting a colleague or conducting business-related activities while on vacation. Respondents said they spend an average of 30 minutes per day working during personal time off.



Legalized hacking?

U.S. Rep. Howard Berman (D.-Calif.) last week said he is honing in on the "unbridled" piracy taking place over decentralized peer-to-peer file-sharing networks, by introducing legislation that would let copyright holders employ a variety of "technological self-help measures" such as file-blocking, redirection, spoofs, decoys and interdiction to stop illegal trading of their works. Because these measures might be prohibited under certain state and federal laws, Berman is proposing that copyright holders be granted a safe harbor from liability for using such tools (see related column, page 62).



DAN VASCONCELLOS

age controllers and systems. IBM lately has been lightening its load in the storage business, having recently sold its disk drive business to Hitachi Data Systems.

Company claims bandwidth breakthrough

■ A Sarasota, Fla., research and development company says it has built modulation technology that lets narrowband radio waves support extremely large amounts of bandwidth. For example, using low-frequency paging spectrum, Island Labs says its technology, embedded in chipsets, can support speeds in excess of 150M bit/sec. The firm says it will introduce the technology, called xG, at the Telecommunications Industry Association TIA Ventures 2002 show in McLean, Va., July 11. "It's a novel modulation signal that can exist within a narrowband radio channel," says Joe Bobier, CEO of Island Labs. "It will have applications for anything that sends or receives data." Those applications would include DSL, cable TV, LAN cabling and wireless LAN technology, he says. The company is getting set to conduct its first field trials, which will focus on boosting cable TV bandwidth.

Symantec catches Mountain Wave

■ Symantec last week announced it has purchased Mountain Wave, the Falls Church, Va., provider of automated, attack sensing and warning software. Mountain Wave makes software called CyberWolf for enterprise security operations management. Symantec paid \$20 million in cash to acquire Mountain Wave.

COMPENDIUM

It's amazing what gets thrown out

A dumpster-diving forum on DealMac reveals people have thrown out perfectly usable Macintoshes and monitors, a rack-mounted RS/6000 server and high-speed memory chips: "I packed them up and used the company's own UPS account to ship them off. Two weeks later I received a check for \$35,000!"

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VoIP

continued from page 1

Opening holes in a firewall for H.323 or other multimedia protocols could leave networks vulnerable, as intruders could utilize voice traffic to spoof a firewall and gain network access, experts say.

"The issue is that the H.323 stack is a wide-open stack," says Mike Venner, CIO at network silicon and component vendor Broadcom. "It's a hackable stack, and it's hard to control."

To avoid tricky VoIP/firewall issues, Venner uses VPN tunnel-

ing to connect remote workers and private point-to-point DS-3 lines to connect larger offices. Fifty Broadcom employees working from home use IP phones and hardware-based VPN clients to link to centrally located IP PBXs from Avaya and Cisco over encrypted IP Security tunnels. This setup lets home and remote office workers have phone extensions as if they were in the one of the company's buildings in Irvine, Calif. Firewalls at Broadcom stay out of the VoIP equation.

Punching holes in a firewall lets voice pass through but could

put networks at risk. This threat becomes dire for businesses using server-based IP PBXs because the phone systems could be brought down by viruses and hacker attacks.

"We've found that running voice over a VPN tunnel works really well," Venner says. While Venner would not say what VPN gear he uses, he says the voice quality is as good as an IP telephony conversation on the company's LAN.

Nokia adds cluster features to VPN gear

■ BY TIM GREENE

MOUNTAIN VIEW, CALIF.—Nokia last week announced software for its VPN appliances that will let users strap together the devices to improve performance and protect against critical VPN sites crashing.

Clustering technology included in Version 3.6 of Nokia's IPSO operating system will let businesses group as many as four of its IP series of VPN appliances so that if one fails, the others will pick up its work without dropping active sessions.

In addition to keeping sites alive, the clusters will share the workload, which will increase the VPN processing power at a clustered site. Throughput for the clusterable IP series appliances ranges from 100M to more than 1G bit/sec.

With IP clustering technology, the Nokia VPN gateways share a single IP address and appear to the network as a single device. The VPN gateways — part of Nokia's IP 300, 400, 500, 600 and 700 series — are based on Check Point Software's VPN-1/Firewall-1 software.

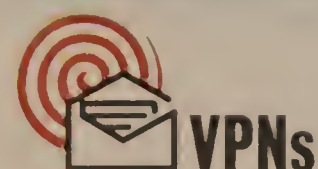
Other vendors such as Cisco and WatchGuard have high-availability and failover options for their gear, but they either need an idle standby unit to fail over to or time to re-establish VPN links that get dropped when a device fails. NetScreen does failover along the lines of Nokia, with clustered devices sharing the workload until one fails, and then the rest picking up the failed device's sessions, says Jeff Wilson, director of research for Infonetix.

In future releases of the clustering software, Nokia will make it possible to create clusters of more than four machines, says Dan MacDonald, a Nokia vice president of product management and marketing.

Customers can configure clusters to have one device handle more of the load. So if a Nokia IP 650 and a larger IP 740 were clustered, more traffic could be directed to the 740 than the 650.

A drawback to clustering is that it creates 10% overhead needed for each device to keep track of the others' sessions. So if the maximum throughput of a stand-alone appliance is 1G bit/sec, when clustered the throughput would drop to 900M bit/sec, according to MacDonald.

The new management software for the devices, called Network Voyager, will include a feature called Cluster Monitor that displays how long a cluster has been up, the number of active sessions and how many ports are being used.

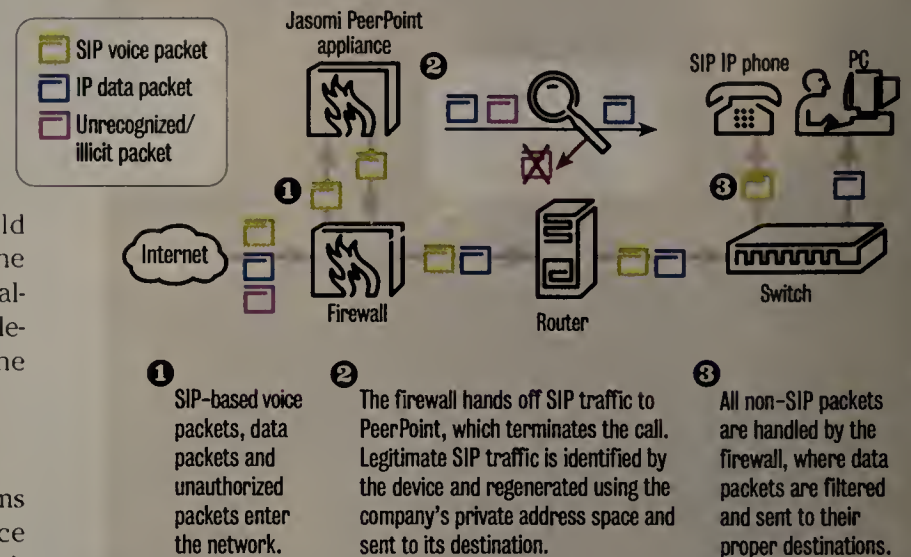


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IPSO 3.6 is available as a free download to customers who have a software subscription, and it will ship standard with new boxes. IPSO 3.6 is in beta testing now and is scheduled to ship next month.
Nokia: www.nokia.com

VoIP and firewalls

Firewall vendor Jasomi's answer to running VoIP with firewalls involves a SIP proxy device to augment a traditional firewall.



Two types of problems

The potential problems with sending IP voice through a firewall break down into two categories: network address translation (NAT) and the complexity of VoIP traffic.

NAT changes the source IP address of a packet from a private address to a public one so it can be routed over the Internet. The "NATing" device, such as a firewall, keeps track of what the private IP address is, so returning traffic can be routed to the sending device.

IP voice traffic consists of signaling traffic and packets carrying the voice signal. The signaling traffic, such as SIP or H.323, uses protocols that contain address information not just in the header but deeper within the packet.

To conduct NAT on this signaling traffic, the firewall must be able to parse and modify the packet all the way to the application layer, something most firewalls were not intended to do.

The signaling traffic and payload packets involved in a single voice call use many types of firewall ports, such as User Data-

gram Protocol (UDP) and TCP. For a voice call to successfully cross a firewall, these ports must be opened. And to maintain security, they must be closed when there is no traffic flowing. Conventional firewalls were not designed to handle this type of complex traffic.

Users could leave firewalls open to all UDP traffic to allow voice to go in and out, but that would violate most people's idea of security.

"It would work but the security manager would be fired the same day," says Opher Kahane, CEO of Kagoor Networks, which makes VoiceFlow, a device that can handle NAT and firewall traversal support for firewalls.

VoiceFlow also addresses how to allow management traffic from outside a site to pass through a firewall to keep track of IP voice gear. Generally, network security dictates that such traffic is blocked by firewalls.

Vendors make strides

Firewall makers, such as Cisco and Check Point Software, have added support for SIP and H.323 to their firewalls. Other vendors including Swedish firm Ingate, Acme Packets and Jasomi, offer VoIP-specific firewalls and appliances that supplement firewalls to better handle voice. Ingate's device supports SIP on dynamically allocated ports on the firewall, which lets large volumes of calls through the box, as opposed to opening a specific port on a firewall for VoIP, which could leave a network open to intrusion, the company says.

Jasomi says its PeerPoint SIP-enabled firewall sits outside a

regular corporate firewall and acts as a secure proxy for SIP traffic between sites connected over a nonsecure network (see diagram).

The Internet Engineering Task Force is working on a proposal called MidCom that would standardize such a proxy for IP voice traffic that is separate from the firewall.

"Voice over IP on the Internet is certainly doable, but I wouldn't recommend it," says Mike ko, director of IT for Experio Solutions, a consulting firm. Experio uses VoIP gear from Shoreline Communications in the company's 18 offices around the country to support 800 employees. The distributed Shoreline boxes run analog voice to desktops, then convert traffic to IP, which can be run across the company's WAN — an IPVPN service from Qwest. Cisco routers at the edge of each site prioritize the VoIP traffic before it is sent to Qwest, where the voice and data flows are encrypted and sent across the VPN instead of the Internet.

While ko says he has run H.323-based videoconferencing through his firewalls and over the Internet for some company meetings, he says he'll stick with his VPN to carry everyday voice.

"We had discussions of possibly opening ports [on our firewalls] to allow voice to go across the Internet ... but there's no need to," ko says, adding that the less his network is exposed to the Internet, the more secure it is. ■

Be a Net Know-It-All

■ THIS WEEK'S QUESTION:
What was WorldCom called originally?

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WorldCom trying to stave off bankruptcy

■ BY MICHAEL MARTIN

NEW YORK — WorldCom officials said last week that for now the carrier's creditors are not forcing the company to repay its debt sooner than scheduled, meaning the company will continue to resist filing for bankruptcy.

Officials also say WorldCom has enough cash to meet short-term expenses, and is negotiating to obtain a \$1 billion loan package.

"These have been very, very difficult times," CEO John Sidgmore said at a press conference. "There has been an understandable outpouring of outrage and anger."

Accounting irregularities uncovered at WorldCom by internal auditors last month forced the company to restate its past earnings by almost \$4 billion.

The restatements meant that WorldCom was in default on some of its loans. The carrier's creditors could have demanded immediate repayment on those loans but have not. Demanding immediate repayment could drive WorldCom into bankruptcy.

"I'm not going to stand up here and tell you there's no way we're going to end up in bankruptcy," Sidgmore said. "America itself has a major stake in our survival" because WorldCom provides large portions of the country's Internet and telecommunication service, he said.

"WorldCom needs the help and the patience and the understanding of our customers ... and the American people," he added.

WorldCom recently revealed that their CFO had overstated the company's earnings for 2001 and the first quarter of 2002 by recording \$3.85 billion in expenses as capital expenditures. Once the \$3.85 billion was properly accounted for, WorldCom's profits in 2001 and the first quarter of 2002 turned into losses.

The company also is investigating whether there are any discrepancies with its 2000 and 1999 financial reports.

Sidgmore said that as of last week, no major customers had canceled their contracts.

IDG News Service contributed to this story.

Sun

continued from page 1

Rose uses an array of Sun servers, including mid-range Sun Fire Serengeti machines, which use the 64-bit versions of Sun's UltraSPARC III processor and Solaris operating system. A low-end single-processor Serengeti (the Sun Fire 3800) with 2G bytes of memory starts at \$85,500.

John Groenveld, associate research engineer for the Applied Research Lab at Pennsylvania State University, has the same need at the other end of Sun's product line. "On high-end [servers] Sun's pricing and technologies are competitive with IBM and other large system vendors," Groenveld says. "It's on the low end that Sun is particularly vulnerable."

Groenveld says most users can't afford expensive SPARC portables or Sun Blade workstations anymore, and should be able to use Solaris on inexpensive Intel- or AMD-based PCs and laptops. Whereas Sun's high-end workstations start at \$1,000 and the heftier Sun Blade 2000 starts at \$11,000, Groenveld says he can get the same performance for less than \$1,000 if he chooses Intel-based workstations.

2. Shelf storage products.

Some customers say Sun's best strategy for the storage market would be a quick exit.

"The company should exit the disk business as fast as possible," says Rocco Esposito, CTO for window-covering manufacturer Hunter Douglas in Upper Saddle River, N.J. "The [company] missed the boat that enriched EMC and others, and needs to find other products and services that have significant margins. Enterprise storage is far too competitive today. This is a major strategic error that might cost Sun its viability."

Michael LaPorta, senior project manager for TXU Energy in Dallas, says that while Sun's servers are robust enough for databases, until the company started reselling Hitachi storage products such as the StorEdge 9900, its storage products weren't suitable for data center needs.

"The T3 [array] could not offer what we were looking for, although we have two," LaPorta says.

Robert Banniza, senior system administrator for Ascension Health in Evansville, Ind., says price also is a problem with Sun storage. "I would purchase more storage from Sun but Sun's prices [would have] to come more in line with everyone else," he says.

3. Give us Solaris 9 on X86.

Sun's decision to put on hold Solaris 9 development on the X86 processor platform might send customers into the arms of Linux unless the company reconsiders.

"Sun has to apologize for the bad will it caused in the customer community by indefinitely delaying the X86 version of Solaris 9 and more generally mismanaging and underutilizing X86 products over the last several years," Penn State's Groenveld says. "If Sun abandons this community by not providing them the Solaris on X86 processor option, then the community will migrate to Windows or Linux." Groenveld uses a mixture of Dell PowerEdge servers running Solaris X86 and Sun Ultra servers for Web hosting and database applications.

Priceline's Rose agrees. "We're very happy with what we have from Sun, but sooner or later, Linux comes up to scale, and it's going to cause Sun a lot of heartburn, even though Solaris is a superb operating system."

4. Ratchet up the R&D.

While customers are generally happy with Solaris, they say it needs to be bulked up.

"We would like to have a better clustering system. SunCluster is very painful [to use] and therefore costly to deploy," says Paul Eric Tavit, CIO of an international communications company in Munich, Germany.

TXU Energy's LaPorta would like the domain capabilities of Sun's E10000, 12000 and 15K extended to smaller servers "so I can domain an eight-processor Sun Fire V880 [server] and get four two-way systems."

"The company has fallen behind its competition on the chip-performance curve," Esposito says. "I'd like to see Sun take a leadership position again. If they fall behind too far, even the quality of Solaris won't help them sell enough hardware to survive."

5. Support can use some help.

Customers say Sun's support systems could improve.

"Sun needs to have better communications about updates, patches, etc.," LaPorta says. "They should be willing to provide a proactive response for free. We have too many servers to keep up with the patch levels and feel that Sun should do something proactively to assist us with this."

He also says Sun should keep historical data on a per-server basis for each customer it supports. This would let them see if a trend is forming for a particular server or range of servers.

"With no historical data for service calls, trending is almost impossible," LaPorta says.

6. Simplify the documentation.

Dan Gahlinger, senior network engineer for Interlynx in Hamilton, Ontario, says that Sun could help users by shipping operating manuals and documentation with their software.

"The first thing you do when installing a new system is go out to sunfreeware.com [or docs.sun.com] and download a couple hundred megabytes of packages," Gahlinger says. "Why not include some or most of this stuff on companion CDs?"

He'd also like Sun to put the GNU Compiler Collection on a disk that it ships with Solaris. "It took me over two hours to download 271M bytes as a TAR file," he says. TAR is a Unix command that compresses files.

7. Taller would be better.

"Sun should add a taller [rack-mount] cabinet so I can place more hardware in the same footprint," says LaPorta, who would like to "at least get three Sun Enterprise 450 servers in a cabinet." ■

Corrections

■ A photo of Intel's 64-bit processor, Itanium, (July 1, page 48) was incorrectly identified as being of an upgraded version of the processor that is expected to be released this week.

■ The story "Microsoft needs help for security plan to fly" (July 1, page 1) should have stated that Microsoft was one of the founding members of the Trusted Computing Platform Alliance.

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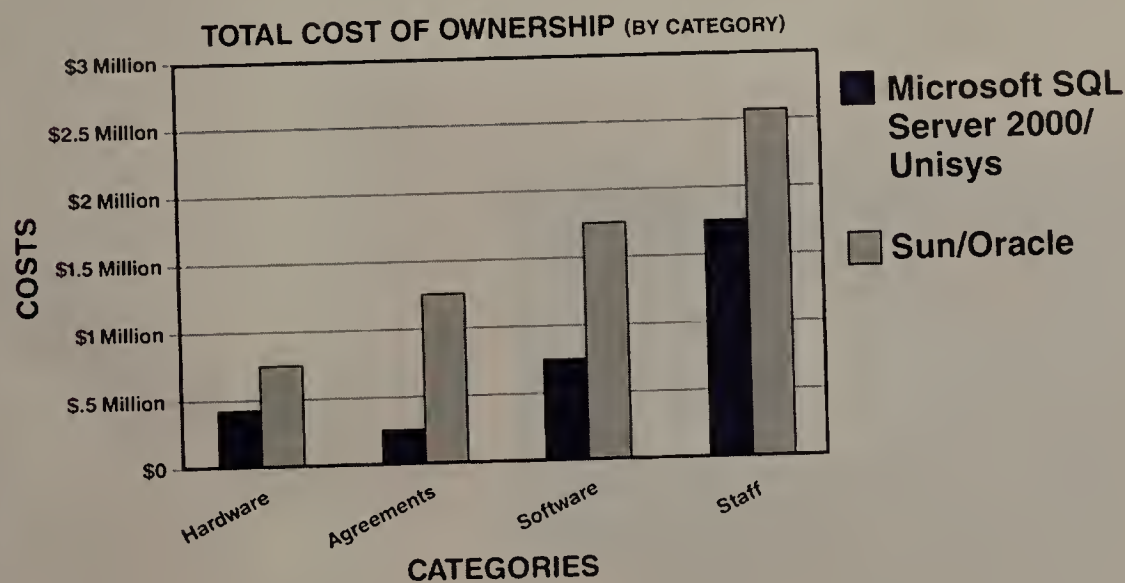
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Figure 6

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Source: Walklett Group, February 2002

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Short Takes

■ **Asanté** recently released the **InterCore 3548**, a 48-port Ethernet switch with up to four copper and/or fiber Gigabit uplinks, aimed at enterprise wiring closets. The box features 48 ports of 10/100M bit/sec Ethernet, two fixed 1000Base-T copper Gigabit Ethernet ports and two expansion slots for copper or fiber gigabit interface converter modules. The new Layer 2 box supports four queues of quality-of-service traffic prioritization. It is available now for \$1,773. The GBICs cost \$215 for 1000Base-T, \$350 for 1000Base-SX and \$700 for 1000Base-LX. www.asante.com

■ **IBM** last week bolstered its tape products to give users more back-up capacity and improved performance. **IBM TotalStorage Enterprise Tape Drive 3590 Model H** uses a new magnetic recording head that increases the capacity of the drive by 50% over older versions of the product. An upgraded 40G-byte Model B or E drive can record up to 60G bytes of data. The 3590 attaches to all IBM servers and to servers running HP-UX, Solaris, Windows NT/2000 and Linux. The company also has added Fibre Connection support to its IBM Virtual Tape Server, which increases performance by as much as 75% over fiber-based Enterprise Systems Connection models. The Virtual Tape Server attaches to all zSeries and pSeries servers, and those running Solaris, HP-UX or NT/2000. The 3590 starts at \$43,500 and is available this month. The Virtual Tape Server with FICON capability will be available in September for \$30,000 per tape channel. www.ibm.com

■ Server start-up **Egenera**, which makes blade-based servers for large businesses, announced last week that it had raised \$44 million in third-round financing. The company manufactures **Egenera BladeFrame systems**, a chassis-based server that contains 96 Intel-based blade computers in one 84-inch rack. The latest funding brings Egenera's total to \$94 million. www.egenera.com

What's in your wiring closet?

New switches spark debate over using advanced technologies to the desktop.

■ BY PHIL HOCHMUTH

A recent spate of Layer 3 and Layer 4 switch announcements would seem to suggest that the technology is moving from the enterprise backbones to desktop connections, with the promise of better application performance and reliability at the LAN edge.

While some users might long for the simple days of desktop hubs, there are benefits to pushing more switch intelligence closer to the wiring closet, some observers say. But some are skeptical, saying the technology amounts to costly wiring-closet overkill and unneeded complexity.

Cisco, Extreme Networks and Foundry Networks last month came out with new Layer 2 gear touted as "Layer 3 aware" or having "Layer 3 and 4 services." Vendors such as 3Com, Hewlett-Packard, Allied Telesyn and Nortel also offer such devices. Most switch vendors also have full Layer 3 gear and Layer 3 software upgrades targeted for wiring closets.

The switches in most vendors' Layer 2 to Layer 4 LAN edge portfolios break down as follows:

- **Pure Layer 2:** The long-standard Ethernet connection for nonrouted networks that use media access control address to move traffic.

- **Layer 3 and Layer 4 "aware":** Layer 2 switches with added software or silicon that lets the switch look into and make use of the IP address and TCP/User Datagram Protocol (UDP) information in packets. This allows features such as access rules based on IP addresses or the application of quality of service (QoS) based on IP address or TCP/UDP port type.

- **Full Layer 3 and 4:** Hardware-based routers with full routing and support for protocols such as Open Shortest Path First (OSPF) and routing information protocol. They move packets based on TCP/IP addresses. They also can classify traffic based on TCP/IP information for QoS and security purposes, and use routing to increase bandwidth on uplinks (see graphic, page 14).

Some say full Layer 3 switching in the wiring closet can be valuable because of the QoS and security features. Plus a fully-routed network distribution layer can provide increased bandwidth and quicker failover of links in a wiring closet.

Layer 2 networks use the Spanning Tree

Protocol (STP) for rerouting traffic around a downed link, but this requires an unused uplink connection to be present if a primary link goes down. Wiring closet boxes can be "dual-homed" to let two live Fast or Gigabit Ethernet links connect to different backbone or aggregation switches by using Layer 3 switching and OSPF. This allows up to 2G bit/sec of bandwidth to the switch and provides almost instantaneous failover if an uplink goes silent.

The Layer 3 Extreme BlackDiamond 6804 chassis switch is used in wiring closets at the Appleton School District in Wisconsin, which has 26 schools connected via Gigabit Ethernet over fiber.

"We're connecting Layer 3 right to the desktop," says Brent Braun, network infra-

structure and security specialist for the school district. "We basically have routers in the wiring closet, but we're not using the [BlackDiamond] for routing as much as we are for Layer 4 switching."

Braun uses Layer 4-based rules on the switches to allocate bandwidth to certain applications, such as voice over IP and the school's administrative applications, over other traffic such as e-mail and Web surfing, he says.

Layer 2 QoS packet prioritization was not adequate for the Appleton deployment, Braun says. "You have a problem if you have a rush of junk suddenly being sent over your pipe [with Layer 2 prioritization]. Bandwidth utilization at Layer 3 and 4

See Switches, page 14

Nexsan introduces IP storage bundle

■ BY DENI CONNOR

WOODLAND HILLS, CALIF. — Storage software and hardware vendor Nexsan Technologies introduced an IP storage bundle last week that will let users access the company's RAID arrays from a Gigabit Ethernet network.

Called Veriture-iP, the storage bundle consists of a StoneFly Networks IP storage (iSCSI) appliance, Nexsan's InfiniSAN ATAbay2 storage arrays and storage management software. It is designed to let small and midsize businesses and departments or workgroups within a corporation connect their SCSI arrays to the Ethernet network, where they can be allocated to any server.

"Customers will gravitate toward simpler IP-based [storage-area networks] if [vendors] can deliver simple-to-use, appliance-like storage management engines that do not require Fibre Channel expertise," says Steve Duplessie, senior analyst at Enterprise Storage Group.

Veriture-iP connects to the Ethernet network via the StoneFly appliance, which in turn connects to the company's InfiniSAN disk array. IP Storage (iSCSI) adapters fit in

the network servers and let them access data located on the InfiniSAN disk.

Management software from StoneFly, called StoneFusion, groups the data residing on the geographically separated InfiniSAN ATAbay2 arrays into a virtual pool of data. Once virtualized, the data on these arrays appears to the network manager as a single logical group of data, which can be reassigned to individual users on the fly.

Up to 15 InfiniSAN arrays can be



Nexsan's Veriture-iP lets users attach SCSI RAID arrays to a Gigabit Ethernet network.

attached to the SCSI ports of the StoneFly appliance, allowing the management of more than 25 terabytes of data.

Nexsan competes with vendors that converge network-attached storage with Fibre Channel and direct-attached storage. While Nexsan and StoneFly focus on small and midsize departments in the corporation, storage companies such as EMC, Auspex and Network Appliance aim their products for enterprise-size businesses.

The bundle is available now starting at \$22,500 for a system configured with 168 terabytes capacity. ■

TOLLY ON TECHNOLOGY

Kevin Tolly



Words matter

don't get caught.

In other cases, there is the carefully crafted "technospeak." Used by white-paper writers, analysts, vendors and trade journalists, this formula demands mixing a copious amount of space-appropriate jargon such that a casual reader will be impressed. Furthermore, when that reader fails to understand what is written, he will assume himself to be inadequate to the task.

Such pieces, of which there are many examples, hearken back to a well-worn maxim: "If you can't dazzle them with your brilliance, baffle them with your..." Well, you get the picture.

In yet other cases, sloppiness or just plain ignorance are to blame. But examples tell the best story. And these examples are all from a sampling of trade publications that came across my desk in recent months.

In a story updating the reader on the state of caching technology, a prominent bullet list of "benefits" lists: "Increase response times by pushing content closer to end users."

So according to the writer, before I install a cache I might have, say, a 3-second response time. After, I would "increase" my response time to, say, 4 or 5 seconds. Huh? Since when is an increase in response time beneficial? Simple common sense applies here. Installing the cache should decrease response times.

Another piece about new Layer 2 Ethernet switches says the devices "could help a small or enterprise IT shop roll out Gigabit Ethernet to the desktop on the backbone." I don't know about your company, but I haven't encountered many desktops on any backbones.

A piece describing Secure Sockets Layer accelerators noted: "However, SSL encryption and decryption can use a lot of processor overhead..." So now it seems we have this "thing" in our processor that we call overhead and we have to be careful not to use too much of it. Nope.

The working definition of overhead in IT is along the lines of "resource consumed in the process of providing a service." Using

SSL creates overhead. If the writer simply used "power" or "resource," that would have been fine, but opting for the more technospeak "overhead" got him into trouble.

The piece de resistance was, appropriately, in a vendor white paper. Touting the benefits of its revolutionary switch management software, the vendor denigrates the old way by comparing it to "flying a 747 jet with a sexton."

Well, at least it sounds good. A sexton, the dictionary tells us, is "a church worker whose job it is to ring bells and dig graves." Who'd want him up front helping out?

Could it be that the writer meant "sextant," a tool used for celestial navigation? I hope so.

Writers should be more careful and, sadly, so must readers. After all, words matter.

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Manasquan, N.J. He can be reached at ktolly@tolly.com.

Switches

continued from page 13

allows for voice to get a certain percentage of the pipe, so no matter how much junk goes through there, voice will always get its required amount of bandwidth," he adds.

Layer 4 technology in LANs also has caught on with users. A recent survey of 500 *Network World* readers showed that 33% of enterprise users have bought Layer 4 switches while another 13% said they will buy the technology during the next two years.

Some vendors say their switches with Layer 3 and Layer 4 services are an alternative to putting routed ports out to users.

"We are actively discouraging customers from deploying Layer 3 routing to users," says Maciej Kranz, director of marketing for Cisco's desktop switching business. Using Layer 3 and Layer 4 packet inspection on Layer 2 desktop ports adds QoS and security features, and keeps the deployment simple, he says.

While there are benefits such as added security and quicker routing between virtual LANs with full Layer 3, Kranz says most deployments he's seen have Gigabit uplinks that are routed, and 10/100Mbit/sec end-user ports running at Layer 2.

One analyst sees Layer 3 as complete overkill for wiring closets.

"[For] the vast majority of configuration, full Layer 3 routing in the wiring closet is not necessary," even for uplinks running OSPF, says Lawrence Orans, senior analyst with Gartner.

"It becomes an administrative nightmare once you turn on Layer 3 devices," he says. "Essentially, you have more routers in the network and more routing tables, which increases problems and complexity when someone has to troubleshoot the network."

Layer 3 technology has come down in price, according to IDC, with the average

What's in your closet?

Multilayer switching at the LAN edge has its good points and bad.

Pros

- More traffic shaping and QoS options
- More uplink bandwidth and faster failover

Cons

- More expensive
- Added complexity with more routing tables and protocols

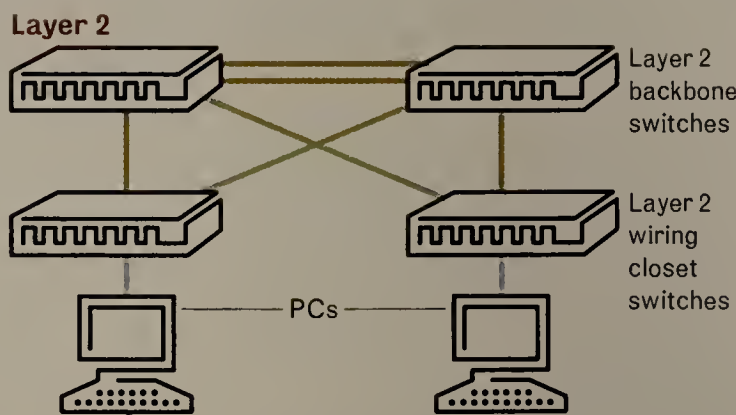
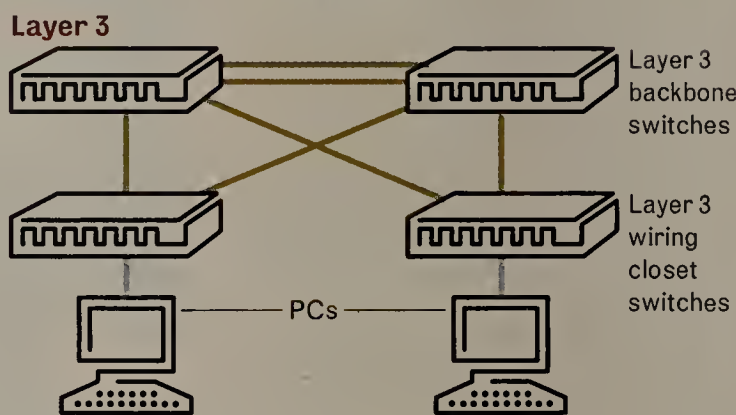
Pros

- Simpler and cheaper to deploy
- QoS still possible with Layer 2 802.1p and 802.1Q

Cons

- Lower bandwidth to backbone with slower failover
- Might not support future video/voice apps

— Live Gigabit link



Layer 3 port down about \$130 from last year. But at around \$430 per connection, Layer 3 still costs more than three times as much as a Layer 2 LAN port. Still, the research firm predicts that by 2006, one-quarter of all LAN switches shipped will be Layer 3, and Layer 3 switch port revenue will account for more than 60% of the total market.

It might not be this year or next year, but lower prices for switches and the development of bandwidth-hungry applications will cause more users to put Layer 3 ports in new parts of their networks, another

observer says.

"Inevitably, everyone will have to be at Layer 3 at the desktop," says Martha Young, research director at Enterprise Management Associates. "This will be necessary to support collaborative applications such as voice and video over IP." ■



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Novell seeks to upgrade NetWare 3 users

■ BY DENI CONNOR

PROVO, UTAH — Novell launched a program last week that it hopes will get 10 million users of its older NetWare network operating system to upgrade to NetWare 6.

Called the NetWare 3 to NetWare 6 Upgrade Promotion, the company will upgrade current NetWare 3 users to NetWare 6 at a discount and provide upgrade protection at no additional cost.

The program is available now and continues through Oct. 31. Customers with 25 concurrent user connections can upgrade for \$1,460; users with 50 connections can upgrade for \$2,190.

NetWare 3 was a popular operating system used primarily in small businesses or as part of a much larger network. Although Novell stopped selling NetWare 3 in October 2000, Novell says as many as 300,000 servers run NetWare 3 worldwide.

Novell first shipped NetWare 3 in 1989; the directory-based NetWare 4 in April 1993 replaced it.

NetWare 3 is the last version of Novell's network operating system that uses a flat-file database manager, called the bindery, and is managed with a series of DOS-based utilities.

To receive the upgrade, companies need to buy as many user licenses as they have concurrent connections and be members of Novell's Volume License Agreement or Corporate License Agreement programs.

NetWare 3 users interested in the upgrade program can call (888) 321-4272. ■



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Experiencing IP Voice

Experio Solutions cuts costs and management headaches with nationwide Shoreline IP voice network.

WHEN MIKE SHISKO set out to look for a new phone system that would serve the 480 employees in his company's 14 offices throughout the United States, he did not have IP voice in mind. Shisko is director of information technology for Dallas-based Experio Solutions, an IT consulting firm created by Hitachi when it acquired a piece of a large consulting company. After the sale, Shisko was essentially given a clean slate on which to map Experio's voice and data strategy.

Shisko already had significant experience working with private branch exchanges (PBXs), having held responsibility for telecom as well as data networks for the previous six years.

Eventually, he came across an IP voice system from Shoreline Communications. Shisko was initially attracted to the Shoreline3

reduced administration costs and savings in long-distance charges resulting from shipping calls over the Internet.

Shisko's positive experience is due in large part to Shoreline's approach to IP voice. Rather than try to retrofit a PBX or router to take on functions for which they were never intended, Shoreline3 was designed solely to offer reliable voice services over an IP net.

There are a couple of keys to the reliability built in to Shoreline3. First are the ShoreGear voice switches that provide call setup and teardown functions. All switching functions are performed in hardware using Shoreline's VxWorks, a real-time operating system similar to that used in pacemakers.

"In the legacy PBX world, five nines reliability is a familiar benchmark," says Greg Ness, director of marketing communications for



Experio's Mike Shisko is now an IP voice believer.

no single point of failure. Each switch also has its own connection to the PSTN and can provide dial tone for attached end devices, even during a power failure.

The ability to connect to the PSTN was an important considera-

The savings to be realized from toll bypass are significant. Whereas Experio previously paid about \$2,000 per office per month in long-distance charges, now it pays about \$2,000 for all offices combined (see chart).

Administration costs have likewise dropped dramatically, he says. As compared with the PBX setup in use before the Hitachi acquisition, Shisko estimates the Shoreline gear cuts management costs by about 60%. He says the Web-based administrative interface is simple to learn and use, and configuration changes can be delivered at once to all ShoreGear switches. Previously, each PBX change had to be administered separately, a time-consuming process that also made it difficult to keep configurations uniform over time.

Hardware acquisition costs were likewise reasonable, because ShoreGear switches of all sizes support the same feature set. Users can start with a 12-port model and add capacity as requirements grow. That's a welcome feature for Experio, which now has 785 employees in 21 offices, barely a year after its initial Shoreline deployment.

Harder to quantify is the productivity gains that come from the applications included with the Shoreline3 system. These include personalized call control and management, a Windows program that enables users to control features such as multiparty conferencing, one-click dialing and screen pops that show callers' names. A Unified Messaging application is integrated with Microsoft Outlook, including the ability to coordinate call-handling features with Outlook calendars. Another feature, AnyPhone, lets Experio employees who travel frequently assign their extension and call-handling profile to any other phone in the network.

"The ability to have all your contacts available for dialing, to be able to cut and paste numbers off Web sites and dial them, to know who's calling you and to see voicemail in your email inbox—people have fallen in love with all that functionality," Shisko says. "Shoreline was a good decision for us. It's proven to be very cost-effective and flexible, and it's done everything we were looking for it to do."

Experio saves big with Shoreline

Per Site Acquisition Costs	Shoreline	Legacy PBX	Net Savings
Equipment, Network Upgrades	\$30,000	\$60,000	\$30,000
Installation - Hard Cost	\$0	\$1,700	\$1,700
Total Per Site Acquisition Costs	\$30,000	\$61,700	\$31,700
Total Acquisition Costs (x16)	\$480,000	\$987,200	\$507,200
Annual Costs			
Management	\$39,600	\$72,000	\$32,400
Maintenance (based on 10.1%)	\$48,480	\$129,280	\$80,800
Long Distance	\$30,000	\$151,000	\$121,700
TCO Per Year	\$118,080	\$352,280	\$234,200
Total Over 5 Years			\$1,678,200

suite of IP voice products because it offered a single point of administration, a consistent feature set for offices of all sizes, and easy connections to the public switched telephone network (PSTN) for local calling and backup—all at a reasonable price. Since installing the system, he's also found it to be highly reliable and even more cost-effective than expected, given

Shoreline, referring to systems that are operational 99.999% of the time. "With a pacemaker, five nines isn't good enough. A few minutes of heart failure per year isn't a positive thing."

In addition to running on a highly reliable hardware platform and OS, each ShoreGear switch operates independently, without involving a central server, which means there is

tion for Experio's Shisko. "We wanted a local dial tone in each office, and a lot of systems made that difficult to manage," he says. By contrast, once installed, each ShoreGear switch instantly finds the others, enabling a new office to start benefiting immediately from toll bypass. And the Shoreline equipment typically took only about two hours to get up and running.

For more information, see www.goshoreline.com.

Enterprise Applications

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Sigaba expands e-mail encryption into wireless LANs

■ BY ELLEN MESSMER

SAN MATEO, CALIF.— Sigaba this week will announce two e-mail security products that will let users encrypt messages sent via BlackBerry devices over wireless LANs.

The first product, Sigaba Secure Messaging for BlackBerry, is a server-based gateway that encrypts data sent from BlackBerry wireless devices. The second, Sigaba Secure E-Mail for Wireless LANs, also is a server-based gateway that plugs into 802.11b LAN access points, but it decrypts messages and attachments. The products, starting at \$50,000 each, will conceal sensitive mail, but deploying them might not be particularly easy.

For one thing, the Sigaba Secure
See Sigaba, page 18

In Site: Lessons from Leading Users

Web service provides relief for healthcare firm

■ BY JOHN FONTANA

The cutting edge in the healthcare industry is typically reserved for the operating room, not the IT department, but Erik Sargent is doctoring that thinking.

The Web applications architect for Providence Health System, a collection of hospitals, clinics and assisted-living complexes in the Northwest, has rolled out a Web service and plans a handful more as part of a project to create standards-based secure access to patients' personal data and medical records. Sargent is creating a unified patient profile without having to move or reformat any data in any of the nearly 200 systems Providence runs to support its operations.

"Generally what we're doing with Web services is trying to accomplish this gargantuan task of being able to easily access all of our different systems, which all store information about patients in different ways," Sargent says. "When we have a health plan and hospitals and laboratories and outpatient clinics, we should tie all that patient data together into a single patient profile."

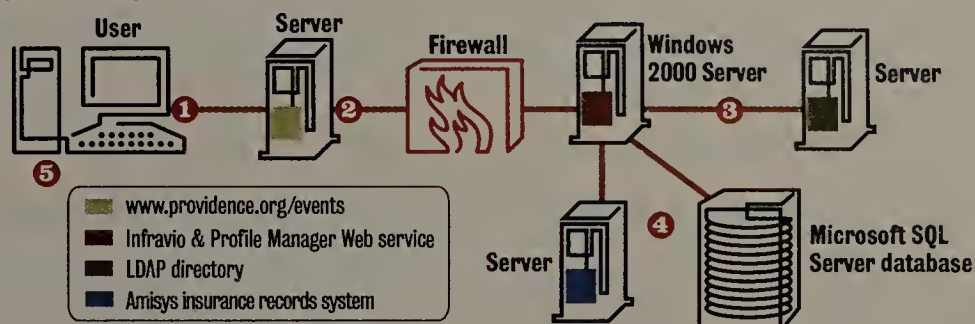
Sargent says profile aggregation is not common in healthcare. "No one is really near where we are except possibly one or two other systems in the country. We're pretty excited about it," he says.

Sargent has deployed a Web service called Profile Manager that uses XML and Simple Object Access Protocol (SOAP) to extract data from Providence's disparate systems. The patient data is taken in its native format, mapped into an XML document and delivered via SOAP to Profile Manager, which presents the data to the requesting application.

To maintain security, applications never directly access the hospital's systems. The application authenticates the end user against a directory and Profile

Profile Manager

Providence Health System is rolling out a set of Web services to support reuse of the volumes of patient data it collects in some 200 systems that support its operations.



1 User accesses Providence Health System Web site to register for community bicycle ride.

2 Web site contacts Infravio Web services management middleware, which checks to see if user is authenticated.

3 If not, user authenticates against LDAP directory using user name and password.

4 Infravio triggers Profile Manager Web service to collect authenticated user's profile stored on either an SQL database or a legacy insurance records system if user is Providence member.

5 User is returned registration form that contains his name, address, age and other profile information.

Manager acts as a broker.

Profile Manager and a Web services management system developed by software vendor Infravio orchestrate the entire exchange. Both sit on a pair of Compaq 700-MHz servers with 1G byte of RAM that run Microsoft's Windows 2000 Server and Internet Information Server and load-balanced by a Cisco Content Services Switch 11000, all of which sit on a 100M bit/sec Ethernet backbone.

"The idea is that we can take an XML-based profile of the information that is in each system and take that profile back to our apps and use it directly or merge it with other profiles," Sargent says.

The standard profiles let Sargent's Web developers easily pull patient data into their applications without, for instance, having to know how to program against MUMPS, a proprietary manipulation language with an embedded database used to store patient information.

It also lets other Providence developers, say those writing an internal billing application, use Profile Manager to pull patient data into their applications.

"We put all the access logic for each system into the profiles, so the developers just have to call the profile in Profile Manager," Sargent says. That model creates time- and cost-savings in developing applications that Sargent has yet to calculate fully.

It's a reuse scenario, he says, that was never fully realized in other component-based architectures such as the Common Object Request Broker Architecture, Component Object Model or Enterprise JavaBeans.

Before Web services, Sargent used enterprise application integration (EAI) software in an exhausting attempt to integrate patient data. That system now has 250 interfaces. Also, the performance is lackluster because EAI is not designed as a query/response system.

So far, Sargent has built two modules for Profile Manager — Web Site Profile and Health-Plan Member Profile. The Web Site Profile includes personal information such as name and address collected from users of Providence Web sites and stored on a Microsoft SQL Server 2000 database. The Health-Plan

See Providence, page 18

Short Takes

■ **Software bugs** cost \$59.5 billion annually, according to a new study commissioned by the Department of Commerce's National Institute of Standards and Technology. Users pick up more than half the tab; developers and vendors the rest. Most errors are not found until late in the development process or during post-sale software use. NIST says identifying and removing defects earlier in the process could save \$22.2 billion annually.

■ Software provider **SAP AG** will resell and distribute **Oracle's Oracle9i Database with Real Application Clusters** under the terms of a three-year deal. The companies say they will provide support to joint customers. The SAP software using Oracle9i RAC will be available within six months for SAP customers using Hewlett-Packard's HP AlphaServer systems running Tru64 Unix. www.oracle.com; www.sap.com

'NET
INSIDERScott
Bradner

The technology is irrelevant

Wall Street Journal quaintly put it. The Associated Press headline was not quite so quaint, referring to it as "the biggest case of corporate fraud in U.S. history." That headline approximates the headlines over the past few months regarding cable operator Adelphia Communications and, of course, Enron. It also echoes many smaller headlines announcing the demise of one company or another because of questionable business practices.

Each headline traumatizes the investment community and causes them to back away even further from start-ups working on new technology. Each time a big company goes bust, the news hits the potential market for new ideas hard. Throwing away a few hundred billion dollars of investors' money tends to cause them to retreat and get that deer-in-the-headlights look. Not exactly a good market for start-ups to get new or contin-

uing funding.

We had the Internet bubble, then the Internet bust, but we thought that the bubble was just stupidity or, more politely put, "irrational exuberance." And I saw a bunch of breathtakingly dumb ideas get funding during the period when it seemed that venture capitalists were funding anyone who knew how to run PowerPoint. At one level, the quality of technology did not seem to matter much during those "good old days." When the inevitable bust came, I figured that we, in the 'Net world, were just victims of our own inability to think seriously about ideas. I figured our thinking was somewhat muddled by all the money flowing around. Lots of good ideas died for lack of continuing funding, along with many ideas that just might have been dead to begin with.

But it now turns out that some of this was irrational greed instead. When criminal

behavior is involved, it's harder to stomach what is happening to the start-ups that were leading the way on the paths of innovation that are key to our technological future.

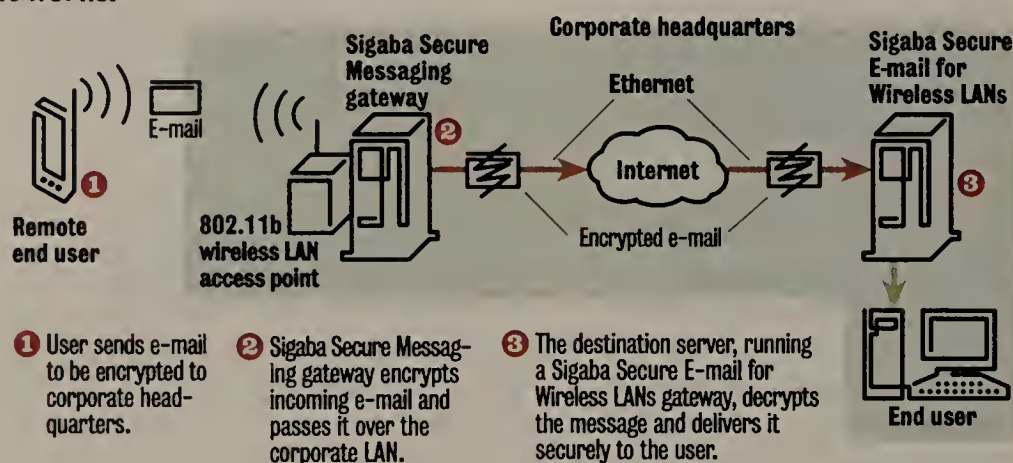
Because we cannot depend on established companies, or now on venture capitalists, to fund the longer-term research and development start-ups they once did, we have to look to other sources of funding or be willing to stagnate. In the time before the boom, federal research money was a key innovation driver, maybe not as adventuresome as it could have been, but key nevertheless. It looks like it's time for the feds to open the purse strings even more.

Disclaimer: Harvard, as well as I, receives federal grants. But I did not ask the university's opinion, so you just get mine.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Secure BlackBerries

Sigaba is rolling out e-mail security products that will let users protect sensitive mail sent via BlackBerry devices over wireless LANs. Here's how it works.



Sigaba

continued from page 17

messaging for BlackBerry gateway has to be installed at the site of the BlackBerry wireless service provider's point of access. Bob Cook, Sigaba's CEO, acknowledges that Sigaba's gateway is not even in tests at any BlackBerry wireless service provider.

Secure E-Mail for Wireless LANs encrypts data sent via the LAN using private-key encryption and decrypts it on the receiving end of another Sigaba wireless LAN server.

The challenge for any corporation using Sigaba's products is that any corporate business partners or customers must agree to use Sigaba software too, to decrypt the e-mail they receive.

This burden is too great, say some businesses that nevertheless want to use encrypted e-mail to shield sensitive data sent over the Internet to a business partner.

"We're a 180-person law firm with a healthcare practice, and we send a lot of private patient information," says Tony Panella, partner at Wilentz, Goldman & Spitzer, P.A., in Woodbridge, N.J. "We feel we are bound under the [the Health Insurance Portability and Accountability Act] to protect patient data. And every-

thing is more driven by e-mail every day." HIPAA requires protection of sensitive patient data by those processing it.

The law firm looked into purchasing encrypted messaging software, including that from Tumbleweed and Critical Path, but elected to use an e-mail encryption service, which costs the firm about \$35 per seat, per year, that doesn't require the recipient to install specialized encryption software. The service, from Zixlt, notifies secure e-mail recipients that an encrypted message is waiting for them, requiring them to enter a password to retrieve it online via an encrypted Secure Sockets Layer link.

One systems integrator, Siemens Health Services division, says it is beta-testing Sigaba's secure e-mail products and expects to offer the Sigaba product line as part of the technologies it installs for hospitals and physicians.

"We don't anticipate resistance to it," says Jon Zimmerman, vice president of e-health at the Siemens division. "And Sigaba also has online bill payment software, called Statement Delivery, that makes this even more appealing."

Sigaba expects to enlarge its suite this fall with a secure messaging plug-in that will run on Windows CE. ■

Site: Lessons from Leading Users

Providence

continued from page 17

Member Profile is data from a user's insurance record, which is stored on a system called Amisys that runs on an HP-3000 server.

The profile modules, in essence, are XML documents that describe how to access data from the host system and what data to collect.

Currently, the profiles are used with Providence's Web-based application for registering participants in events the hospital sponsors, such as an upcoming community bicycle ride.

The Web Site Profile is used to automatically fill out registration forms with name, address and other information previously collected from users of Providence Web sites. It also can collect data from a new user's registration form to create a Web profile. The Health-Plan Profile gives the same service to Providence members, but also can be used to trigger membership benefits, such as registration discounts.

Profile Manager is written in Java and the business logic contained in the modules is written as Java servlets, which Infravio Web services software converts to XML and SOAP. The servlets run on an Apache Tomcat servlet engine installed on Win 2000.

Infravio serves as a security guard and gatekeeper, letting only authorized applications running on authorized servers request information through Profile Manager.

For example, the IP address of the server running the event registration Web site is authorized to connect to Infravio. That kind of configuration controls access to Profile Manager and

meets current Health Insurance Portability and Accountability Act regulations, which requires securing access to patient information.

Profile Manager and Infravio software run behind the firewall so nothing goes out over the Internet except the nuggets of profile data that Profile Manager returns in the form of HTML pages.

The Infravio platform costs about \$50,000 and consultants from the company set up Profile Manager in three weeks.

Sargent says he also had some idle server hardware that was used to run Profile Manager.

Sargent plans to roll out eight more profile modules in the coming months that he says will meet 90% of his needs for creating a unified patient profile.

One will be for his Logician system, which stores medical records for Providence's primary care clinics that record everything electronically.

"All the results, lab tests, doctor notes, prescriptions, it's all in there," Sargent says. "By creating a profile into Logician, that is where we can start doing the online medical record, online scheduling for people, the whole bit."

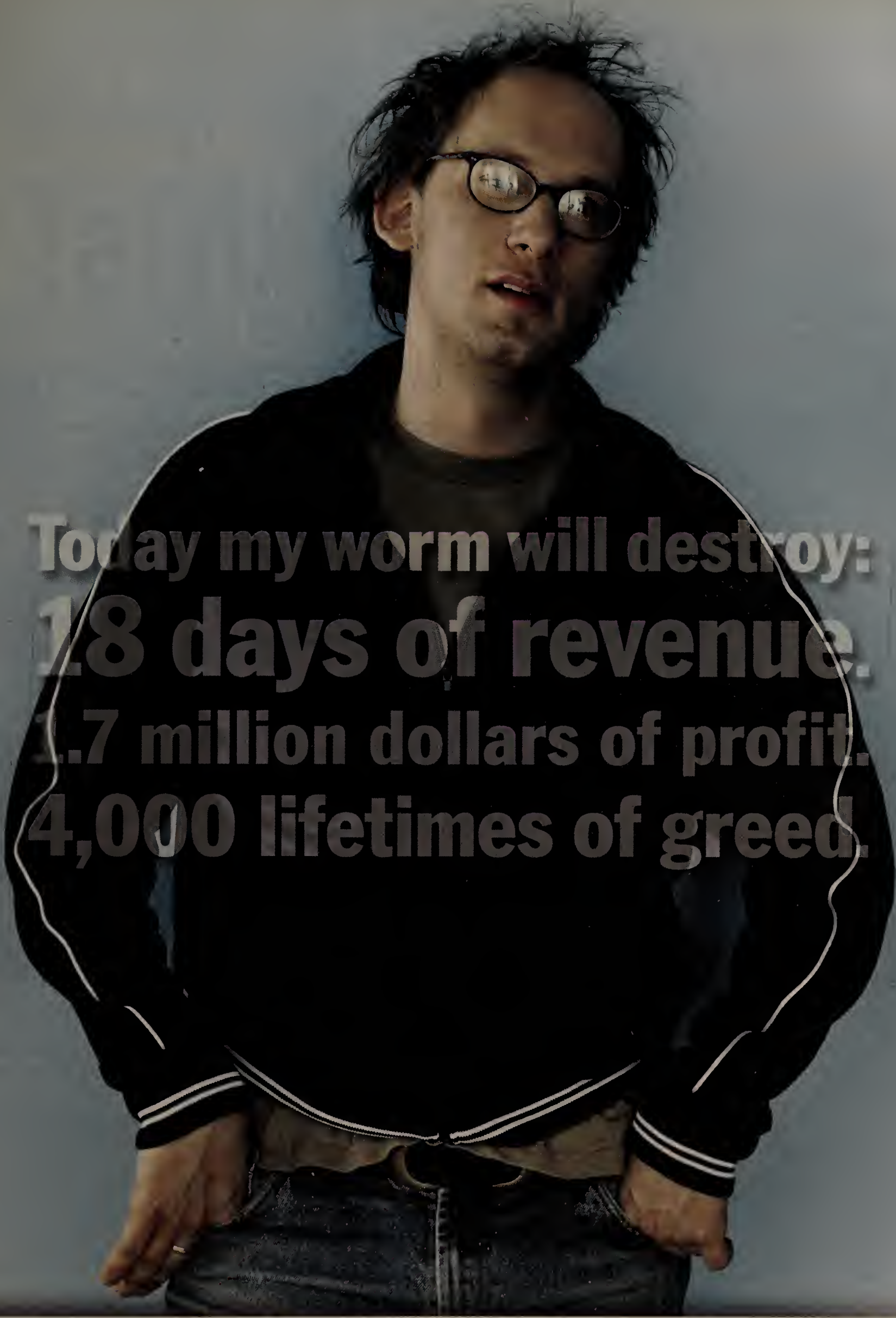
And when that rolls out, Providence's IT department will have secured its place on the cutting edge. ■



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Enterprise endgame

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■ PRODUCTS, SERVICES AND STRATEGIES
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Out of sight, out of mind

Four companies share the tools and strategies they use to secure home offices.

■ BY TONI KISTNER

Axcelerant's CTO Jeff Christy likes to say, "We treat ourselves like customers." While the managed VPN services provider counts 35 Fortune 1000 companies as customers, it also provides remote access to its 70-plus employees. As such, Axcelerant knows from both angles the challenges network executives face when securing remote offices.

Axcelerant's service includes sophisticated broadband provisioning and security management software combined with a VPN/firewall appliance from NetScreen or SonicWall, or if a software VPN is in place, a firewall device from ZyXel.

"We can architect a secure solution, but the issue comes down to that architecture staying in place and making sure the home users aren't doing something that directly compromises security," Christy says.

Typical misbehavior includes unplugging or plugging around the VPN appliance, or plugging the system directly into a broadband modem. Teleworkers often try to improve productivity by sharing a printer between their family machines and their work machine. But Christy has seen numerous situations in which home users want to do things they don't want the company to see.

Educating firms of the dangers is a challenge, too. "Enterprises will tell us, remote users can shut down the VPN as long as they're not connected to the corporate network," he says. "The trouble is, that remote system is a corporate asset, which logs onto specific servers and intranet pages, and

Windows caches all those passwords. Once you disable the VPN, all that information is now accessible to hackers."

Two networks in one

SonicWall's new Tele3 Trusted Zone (TZ) addresses this two-network problem, and makes it easier for teleworkers to safely share peripherals and files on a home network. The device includes two physical ports, WorkPort and HomePort. Typically, you attach all the peripherals to HomePort, and only the corporate PC to WorkPort. Then you create a firewall policy between the two interfaces that lets the corporate PC access specific home devices on HomePort, but doesn't let HomePort devices access anything on WorkPort.

Peter Silvo, corporate services manager at storage network company Network Appliance, in Sunnyvale, Calif., relies on Axcelerant's managed VPN service to connect 900 employees' home offices, and recently launched a small pilot program of the Tele3 TZ.

"A lot of people share the connection with a spouse or a roommate, who sometimes works for a competitor. But with the TZ, the work machine is protected. If somebody's kid downloads a virus, only the systems on the HomePort get infected."

Silvo's strategy is to educate and trust his users, and he shores things up so if something happens he can catch it right away.

Double-edged sword

The network director of a large software company in Silicon Valley (who requested anonymity) credits much of his company's success on its ability to hire talent from all over the world. While he, too, contracted with Axcelerant to manage his company's VPN, he still found managing remote workers troublesome.

Although out of sight, remote users were always on his mind. "If an employee and his spouse are hooking their computers together, we could be hooking ourselves up with a competitor and we don't have a lot of control over that. Even though we wrote policies and tried to educate people, we just don't have a lot of control over that kind of behavior."

This network director detected a lot of deviant behavior by watching network traffic, spam and e-mail from unknown sources, but the job was difficult and time-consuming. So when Axcelerant finished

Tools of the trade

Particulars on the products and services these firms rely on to secure corporate home offices.

Product	Description	Benefit
Axcelerant Managed VPN Service	Offers broadband provisioning and VPN management for remote corporate networks.	Scales well for large telework rollouts. Remote network policy monitoring available.
Check Point VPN-1 SecureClient	Software-based VPN.	Lets mobile and part-time teleworkers connect to the network from various locations.
Schlumberger DeXa Suite of Services	Products and services for securing remote and mobile connections, VPNs, extranets and smart cards.	Smart card authentication technology provides system and building security.
SonicWall Tele3 Trusted Zone	Security appliance with two physical ports — one for the corporate PC and one for the home network.	Segregates corporate PC from PCs on the home network, yet lets corporate machines access home network resources safely.

the beta-test cycle of its new remote security policy-monitoring program, Scout, his company began a large pilot program.

The Scout agent sits on the remote user's PC and sends an alert to the network if that machine deviates from its security policy. Scout can send the administrator an e-mail or Axcelerant can disable the VPN tunnel.

"My security team's given it the thumbs up," the network director says. "Anyone logging in remotely will have SecureID and the Scout agent running on the system."

Oil and water

For many companies, the combination of Axcelerant's managed VPN service, SonicWall Tele3 TZ and Scout Agent might seem sufficient, even overkill for some. But Schlumberger Network & Infrastructure Solutions, a 75-year old multinational information services firm, has taken a different approach. Because much of the company's work is in oil field services, 5,000 employees are nomads, working for long stretches on oil rigs in remote places.

"By 1982, we'd mapped 80% of the world's well sites, proprietary data we've kept secure for our customers. We've done it with our road warriors, whom we've had to keep linked to our [research and development] groups in metropolitan areas," says Kosta Gioukaris, business development manager for Schlumberger.

The challenge for Schlumberger was how

to grant road warriors access to e-mail, applications and time sheets while on oil rigs or traveling. The company developed its own connectivity products, the DeXa Suite of Services. Today, Schlumberger nomads use a variety of remote access technologies, including the company's DeXa.Net VPN services, DeXa.Badge smart card certificate authentication product, and Check Point Software's VPN-1 SecureClient. Some remote workers access server-based applications using products from Neoteris, Tarantella or i-Planet.

Schlumberger's security is based on three policies: All applications are kept on the corporate servers; mandatory use of smart cards to access all PCs, buildings and floors; and certificate authentication challenges at 15-minute intervals.

Gioukaris has little concern for home office security. "The moment you pull the smart card from the reader, the PC no longer has any access to company services. Then employees can use the broadband connection for anything they want," he says.

While workers are generally accepting of the policies, Gioukaris says they've asked to store their password onto a PC so they wouldn't have to type in their username and password so frequently. "But we've enforced it rather stringently," he says.

A Schlumberger employee adds "It can be distracting at first, but one gets used to it." ■

Short Takes

■ **D-Link** last week announced a small office/home office Cable/DSL Router for \$50 — priced about \$20 less than competitors' products. The Express Ethernet™ Cable/DSL Router packs a four-port 10/100 auto-negotiating switch, and features include a network address translation firewall, VPN passthrough, stateful packet inspection filtering, content filtering and basic network management. www.dlink.com

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Slam Dunk aims to assure e-delivery

■ BY TIM GREENE

REDWOOD CITY, CALIF. — Sometimes online transactions just have to get there — absolutely, positively guaranteed — and that's what Slam Dunk Networks promises.

The electronic-trading service provider blends Internet access with its own fiber backbone and security gear to transport critical business communications and generate electronic receipts that confirm the data has arrived safely.

Aiming its services mainly at financial institutions doing business-to-business trading, Slam Dunk lets customers inexpensively extend online trades to sites that otherwise might not warrant a connection with a leased-line or frame relay trading network.

"This could allow larger firms who manage hundreds of connections to get to people in other geographies where the cost of leased circuits is too high to be a cost-effective way of connecting to a stan-

dard trading network," says John Treadway, vice president of marketing and business development for Financial Fusion, an IT provider for banks and securities companies. The Concord, Mass., company offers Slam Dunk services as part of its secure trading offerings.

Venture Industries, a \$2.5 billion supplier of plastic car parts in Fraser, Mich., uses Slam Dunk to move financial data, orders and confirmations between its suppliers and its headquarters in Europe, according to Al Young, executive assistant to the chairman of Venture Industries.

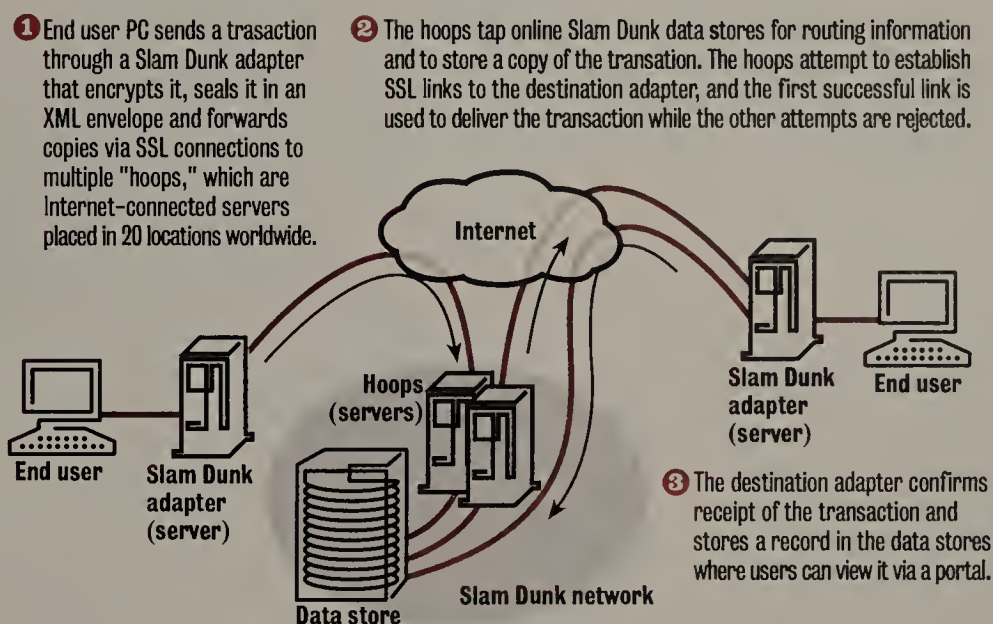
He says the Slam Dunk service costs 75% less than Venture paid to outsource electronic delivery of this data to a provider he declined to name. That amounts to millions of dollars per year. "It's cheap, and so far it's been perfect [for delivering files]," Young says.

To connect to the Slam Dunk service, sites must have an Internet link and a

See Slam Dunk, page 25

Secure confirmed transactions online

Slam Dunk Networks uses the Internet in combination with its own network to transport messages securely with guaranteed delivery.



Short Takes

■ A recent IDC survey found that only 5% of respondents plan to increase their purchase of hosting services. That likely means future service provider spending will be focused on new services such as managed storage or application management, IDC says. The findings are from a January survey of IT managers regarding their use of services, which include application management, storage, content delivery and Web hosting services.

■ Verizon late last month filed a long-distance application for Delaware with the Federal Communications Commission. Verizon already has been approved to offer long-distance voice and data services in eight states where it is the dominant local carrier. Under the Telecommunications Act of 1996, incumbent local carriers must prove they have opened their networks to competitors before they are allowed to offer long-distance.

■ BY JENNIFER MEARS

ARMONK, N.Y. — IBM is stepping up its push to provide e-business services on demand and has introduced an offering that gives customers access to computing resources on a pay-as-you-go basis.

Linux Virtual Services, introduced last week, give customers running Linux applications access to a "virtual server," which is a portion of an IBM zSeries mainframe. IBM partitions the processing, storage and network capacity on the mainframe for each customer, letting it scale resources as needed, while providing the same security offered by a dedicated server, says Warrant Hart, director of e-business on demand for IBM Global Services.

"If you think about the evolution we've seen, it started with people having their own data centers, they started using service providers. They started using hosting centers, and all of a sudden they were sharing the bandwidth, then sharing a switch [and] maybe sharing a firewall. Now they're sharing a server. But from the user's perspective, it's a dedicated, unique machine," Hart says.

He says customers, while sharing a main-

frame box, do not share applications, programs or files.

"If you have a virtual server and you're running Oracle or you're running DB2 as your database and someone else on that same utility platform is running Oracle or running DB2, you're each running your own copies," he says. "There is no data sharing, no file sharing, no questions on integrity."

IBM monitors and manages zSeries mainframes in its hosting centers, and additional virtual servers can be provisioned in minutes, the company says. IBM provides application-porting services to Linux for customers running non-Linux platforms.

Linux Virtual Services customers also have access to storage on demand and network capacity on demand.

The virtual services are priced using service units, which cost about \$300 per month and are a measure of capacity. Hart says the service unit includes a portion of the mainframe, a portion of the software license for the Linux operating system, a portion of the management of the operating environment and a portion of the data center floor space and power.

Customers buy a number of service

units depending on their average demand during a 24-hour period, rather than buying capacity to handle peak loads, as customers must do when buying dedicated hardware, Hart says. That's where companies stand to realize the biggest cost savings, analysts say.

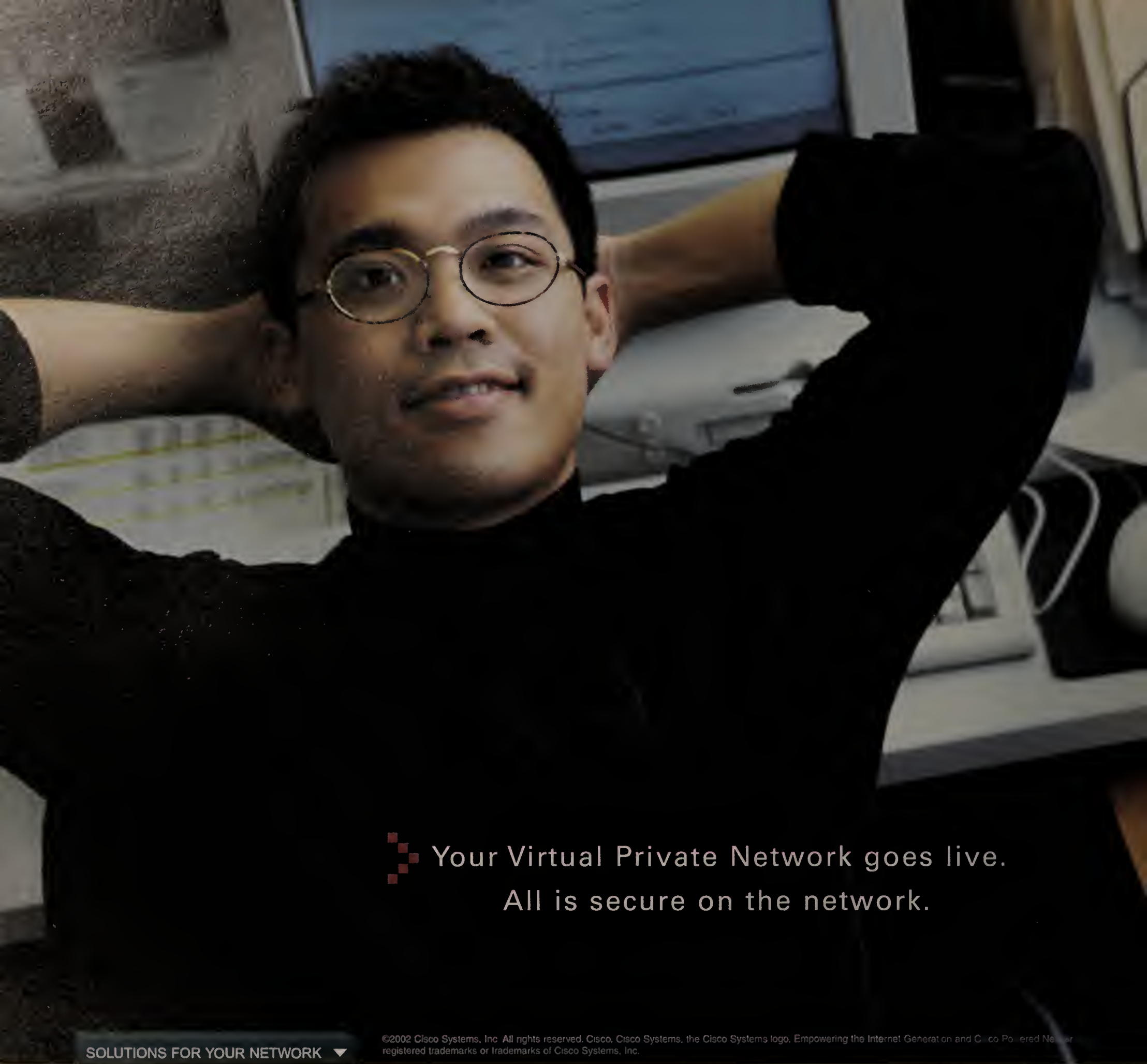
"There's a lot of wasted capacity out there," says David Tapper, an IDC analyst. "And you're paying for it. If it just sits idle, you're still paying for it. So customers should expect some serious cost savings."

At the same time, Tapper says IBM needs to educate customers about how the service can provide real benefits. In today's economy, businesses remain wary about trying untested services, he says.

"The customer is likely wondering, 'Where do I apply it to my business? Is it safe? Really show me that I'm going to save money and that I'm going to drive business on it, too,'" he says.

Still, there is a trend among service providers to offer such computing-on-demand. Hewlett-Packard offers usage-based pricing for its servers and, along with Sun and IBM, sells grid computing as a way to get more out of computer resources. ■

IBM service slices up Linux mainframe



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EYE ON THE CARRIERS

Lisa Pierce



Customers who are contemplating signing with a carrier in financial distress should assess the problems that may arise in the event that distress worsens, especially if intending to rely on that carrier for primary coverage for critical applications.

At his time, no one really knows what will happen to such providers, except that they all will go through difficult periods during which it will be hard for senior management to focus on network and customer support quality while tending to financial crises. Thus, it is prudent to consider worst-case scenarios and change plans.

Providers that face financial difficulty must decide what lines of business to try to grow, sell, close or hold. Customers must factor this into their evaluation of current and potential primary and secondary providers.

Neither Qwest nor WorldCom has laid out very specific plans as to their future product and service makeups. In such instances, customers should refrain from new or expanded commitments until providers make their plans known. Because even the most well-intentioned plans can change, customers should not make significant commitments until there is tangible evidence that implementation is under way.

Customers cannot assume that carriers facing financial difficulty will provide them

Those using beleaguered carriers need to prepare

with a long window to migrate to other services or providers before they discontinue supporting a service that is slated for termination. Realistically, it may only be a matter of weeks — in the case of some ISPs that recently have discontinued operations, it was a matter of days.

Enterprise network contingency planning is essential.

Although recent news about WorldCom is stunning, virtually the entire industry has been and will continue to be in turmoil throughout this year, and the ill effects will last well into 2004. There is no absolutely safe ground, no sure bets. All customers should diversify risk by diversifying carriers. Large customers — those spending more than \$10 million annually — should split traffic between multiple Tier-1 facilities-based providers. Smaller customers should employ a second Tier-1 facilities-based provider to back up critical applications or routes.

Keep contract term lengths short; for example, for transport services, no longer than two years. Consider even shorter contracts — a year or less — with providers facing great challenges. In such instances, clients might find they can negotiate good prices on highly competitive services without making any term commitments.

Review all contract terms and conditions with company attorneys, both contracts currently in effect and also any under consideration. Look at the language around early termination clauses to determine if there are provisions for either party's bankruptcy or poor performance (network and customer support). Work on revising contracts to ensure these events are covered.

Very large companies supported by ded-

icated provider personnel should have contingency plans that include the option of bringing those key employees on to your company's payroll. Affected customers should review current contracts and

ensure such provisions are in place.

Pierce is a research fellow at Giga Information Group. She can be reached at lpierce@gigaweb.com.

Slam Dunk

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server equipped with Slam Dunk software called Adapter.

Customer machines connect to Slam Dunk's network through the adapter using Secure Sockets Layer links over the Internet. Their traffic is transported over Slam Dunk's leased fiber network and delivered to destination sites via the Internet, leased line or frame relay connections.

Slam Dunk adapter servers at customer sites encrypt and copy data to two Internet-connected Slam Dunk servers called hoops, which copy the data and store it to a database as backup. There are 20 hoops worldwide.

The two hoops involved in a transaction attempt to make secure links to a destination adapter server, which accepts the first connection request and drops the other. The data is sent, and the destination adapter logs receipt of the transaction with a Slam Dunk database. Customers can track their transactions through personal portals to confirm they have been received.

All traffic consists of file transfers, with the maximum file size of 500M bytes. The only

devices the adapters will talk to are hoops, and the adapters and hoops authenticate to each other using digital certificates.

Young says he is encouraging others in the auto supply industry to adopt Slam Dunk to send just-in-time orders as opposed to the ANX, the automotive industry's VPN cooperative. "It's cheaper than value-added networks, and there's no up-front investment," Young says. Venture Industries pays for a block of data ahead of time and uses it like you would use minutes on a prepaid phone card.

Treadway says Slam Dunk overcomes the security and reliability concerns that financial institutions have about the Internet. "This removes the objections to using the Internet as a way to conduct trading among partners," he says.

He says nearly all financial-trading sites have Internet connections that the Slam Dunk service can ride on, so using the service requires no additional access line. This saves the cost of the extra line and eliminates installation time.

Slam Dunk costs about a penny per kilobyte based on the amount of data sent. Provisioning the service costs a one-time fee of \$500 to \$1,000 per site. ■

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The Edge

■ SERVICE PROVIDER DEVELOPMENTS
AT THE JUNCTURE BETWEEN THE ENTERPRISE
AND THE NEW PUBLIC NETWORK

Cisco addresses storage aggregation

Company unveils metropolitan DWDM system for SAN applications.

■ BY JIM DUFFY

SAN JOSE — Cisco recently unveiled a metropolitan-area network platform that lets users aggregate up to 40 data connections over a single wavelength.

The system, called the ONS 15530, is a dense wavelength division multiplexer (DWDM) optimized for storage-area network (SAN) applications. It can multiplex up to 40 Enterprise Systems Connection (ESCON) channels over one 10G bit/sec wavelength.

Alternatively, users would have to dedicate a separate wavelength for each ESCON channel. But a single ESCON chan-

nel operates at 200M bit/sec, which would use less than 2% of the available bandwidth in a 10G bit/sec wavelength.

ONS 15530 also supports SONET/SDH, ATM and Fiber Connection network and storage applications. In future releases, the ONS 15530 will aggregate multiple higher-speed network and storage services, such as Gigabit Ethernet and Fibre Channel, over individual wavelengths, Cisco says.

Cisco also is looking to multiplex different types of services onto a single wavelength, says Dave Lively, senior manager of optical strategy at Cisco.

With the SAN service aggregation capabilities of the ONS 15530, Cisco is playing catch-up to ONI Systems — which Ciena recently acquired — and Nortel. Cisco is the No. 4 vendor in metropolitan DWDM behind Ciena/ONI, Nortel and Sorrento Networks, according to Dell'Oro Group (see graphic, right).

But the ONS 15530 is only the first step, analysts say; Cisco still has a long way to go.

"Cisco's been a bit lacking with regard to service aggregation," says Dave Dunphy, senior analyst for optical infrastructure at Current Analysis. "ONI and Nortel were all over that. Cisco is now responding to the hotter opportunity [in metropolitan opti-

cal] that's expected to drive wavelength services in the metro."

But ESCON support alone does not go far enough, Dunphy adds.

"ESCON is not nearly as prevalent as Fibre Channel," he says. "But they don't have a time frame yet for Fibre Channel or Gigabit Ethernet. So this is not going to flip the charts in market share or short-term revenue."

As a result, Dunphy considers the ONS 15530 an early-phase statement of direction for Cisco.

Deb Mielke, principal at Treillage Network Strategies, says ESCON-only support is just a short-term shortcoming.

"Cisco's filling out its portfolio incrementally," she says. "People need to see how SANs work in a highly dispersed environment" before incorporating all features.

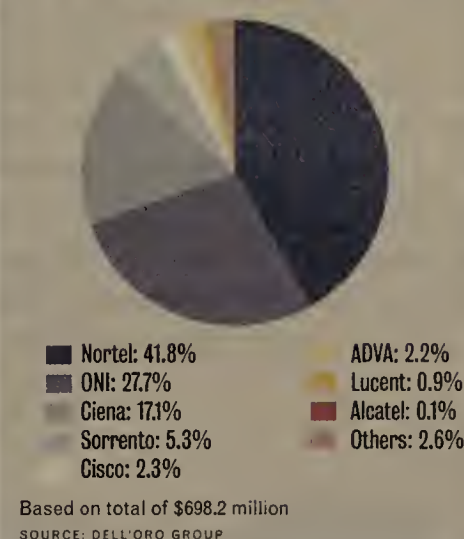
The ONS 15530 supports up to 32 2.5G bit/sec or 10G bit/sec wavelengths on a single fiber pair.

Other DWDM features include a so-called Optical Supervisory Channel, used for management and performance monitoring, and four-channel Optical Add/Drop Multiplexer modules, which let the systems be configured in point-to-point, ring or meshed network topologies.

Playing catch-up

Cisco has its work cut out for it in metro DWDM.

2001 worldwide metro DWDM revenue



Cisco says it is conducting joint-testing of the system with IBM in IBM's server and storage environments. The testing is expected to be completed within the next quarter.

The base ONS 15530 system is list priced at \$54,000. It is available now and is currently in fewer than 10 trials, Lively says. ■

Short Takes

■ **IBM** recently announced an alliance with **Narad Networks** to develop an architecture designed to let cable companies more easily and cost-effectively provision services to companies. Narad will develop and deploy a delivery platform that lets IT services be delivered at speeds of up to 100M bit/sec over existing cable lines, which is 20 to 50 times faster than current speeds. The platform will combine IBM's "device to back-end infrastructure for e-business" with Narad's service delivery software and broadband access technology.

■ **Edge Wireless** has awarded **Nortel** a three-year, \$18.5 million contract for 3G wireless equipment. Nortel will supply Edge with GSM and General Packet Radio Service wireless infrastructure upgrades for its Time Division Multiple Access networks in the western U.S. and will deploy GSM and GPRS radio access and core-switching equipment for Edge in California, Oregon, Idaho and Wyoming. Nortel also will deploy its Shasta 5000 Broadband Services Node and Passport Multiservice Switches for Edge, for subscriber management and Layer 2/Layer 3 data switching, respectively.

Kagoor gear manages VoIP traffic

■ BY JIM DUFFY

SAN MATEO, CALIF — Kagoor Networks last week announced several new and enhanced voice-over-IP traffic-management products and applications aimed at facilitating enterprise-to-carrier VoIP networking.

The new offerings address security; network address translation (NAT); VoIP firewall and firewall traversal; service-level agreement (SLA) reporting; and monitoring, remote management and configuration of VoIP endpoints. The products extend Kagoor's VoiceFlow traffic processing and management line, which supports major VoIP protocols — Session Initiation Protocol, H.323, Media Gateway Control Protocol and MegaCo — and is compatible to popular VoIP network and endpoint equipment, the company says.

The applications and products are:

- Extensions to VoiceFlow traffic-engi-

neering and aggregation devices to address security, management and quality-of-service (QoS) at the enterprise and carrier demarcation point.

- Firewall/NAT, call admission control, advanced call/services support and SLA monitoring applications.

- A network-based IP Centrex deployment application that eliminates the need for customer premises equipment.

- Two VoiceFlow products: the VoiceFlow 200, a low-end enterprise product for small and midsize businesses; and the VoiceFlow

3000, a high-end, Gigabit Ethernet-based traffic-management system for service providers and carriers addressing the small office/home office and residential markets.

Kagoor found that the overriding challenges of carriers about enterprise-to-carrier VoIP peering and demarcation have been with functionality gaps in QoS assurance; NAT; admission control and SLA reporting; and the prohibitive cost and complexity of VoIP deployments.

Solving these demarcation issues lets service providers/carriers interconnect public VoIP networks with private VoIP enterprise networks, the company says.

Kagoor rolled out its first VoIP traffic manager, the VoiceFlow 1000, in June 2001. Carrier ITXC has deployed this product with a number of its affiliates and Kagoor says the carrier is realizing more than 50% bandwidth savings and longer call holding times for VoIP calls. ■



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Technology Update

■ AN INSIDE LOOK AT THE TECHNOLOGIES AND STANDARDS SHAPING YOUR NETWORK

Layer 2 VPNs allow scalable meshing

■ BY ANDREW GIBBS

When it comes to VPNs, there is no one-size-fits-all solution. However, if service providers can provision multiple VPN applications from a common network platform, the operational efficiencies and cost savings gained will yield a wider variety of affordable network service choices for enterprise customers.

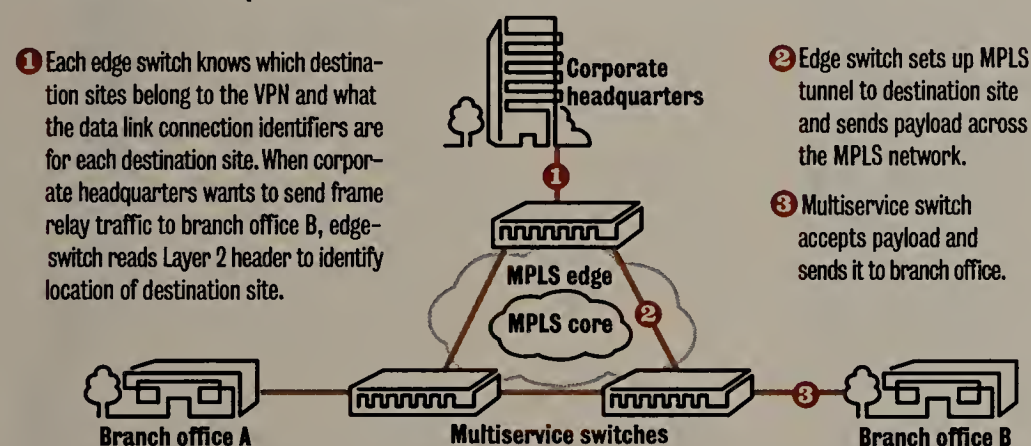
There are a number of hybrid Multi-protocol Label Switching (MPLS) applications. For example, one is based on the Internet Engineering Task Force's Kompella Provider Provisioned VPN Internet draft titled Layer 2 VPNs over Tunnels.

Service providers can deploy this application as an unmanaged service. That means it will let enterprise IT departments retain control over their internal IP addressing schemes while gaining a more cost-effective solution for full-mesh connectivity among their VPN sites.

The technology for delivering this application is based on an overlay network design in which customer premises devices transparently peer with one another at Layer 3 through an MPLS core network using a block of frame relay or ATM

Layer 2 multiservice VPNs

Kompella draft VPNs offer the ability to tunnel frame relay or ATM traffic across a service provider's MPLS core network.



attachment connections.

Inside the MPLS cloud, Border Gateway Protocol (BGP) sends information about each block of Layer 2 permanent virtual circuits (PVC) to all remote provider switch/routers at the edge of the service provider cloud.

Frame relay or ATM PVCs are logically tunneled across the MPLS backbone to the appropriate provider edge device serving the intended destination, resulting in point-to-multipoint switching. This is possible because MPLS can stack labels within labels and the edge device switches on only label at a time. The incoming Layer 2 protocol control header identifies the location of the destination site. The Layer 2 look-up table at each edge device contains information about the destination site and the VPN label to reach it.

At each participating provider edge device, the Layer 2 protocol header is

stripped, and its IP payload is encapsulated in the VPN label.

This point-to-multipoint capability solves the scalability issue associated with provisioning conventional Layer 2 frame relay and ATM full-mesh networks. In a traditional Layer 2 network, a full mesh requires $N \times (N-1)/2$ PVCs, where "N" is the number of customer sites. For example, a 10-node network would require 45 PVCs, while a 20-node network would require 190. Adding a site to a Layer 2 multiservice MPLS VPN, on the other hand, requires just configuring the provider edge router connected to the new site. In addition to frame relay and ATM, multiservice VPN customers can use Ethernet, Point-to-Point Protocol and High-Level Data Link Control access connections.

Security of enterprise VPN forwarding information is assured by partitioning traffic using a route-distinguisher prefix,

which uniquely identifies each VPN customer's traffic in BGP updates between participating provider edge devices. Without route distinguishers, when traffic from many VPNs are sent through one tunnel, the wrong MPLS label might be used and data could be sent to the wrong VPN.

Looks like frame relay

From the customer's point of view, a Layer 2 multiservice VPN appears just like a traditional frame relay or ATM subscriber service. Enterprise IT departments will retain responsibility for IP addressing assignments at every site. Each site will peer with one another at Layer 3, with the service provider having no knowledge of the customer routing information.

However, the service provider maintains and manages a single MPLS-based network for Layer 2 multiservice MPLS VPNs and Layer 3 IP-based MPLS VPNs (specified in IETF RFC 2547). Layer 3 MPLS VPNs are generally deployed as managed network services in which the service provider assumes control of customer IP addressing assignments.

Fortunately, all MPLS-based VPN applications can be provisioned from a common MPLS backbone infrastructure. Doing so lets service providers continue supporting legacy data services and new Layer 2 and Layer 3 services in a scalable manner without having to run multiple networks. This will result in a larger choice of affordable services for enterprise customers.

Gibbs is senior product manager of IP/MPLS Services for WaveSmith Networks. He can be reached at agibbs@wavesmithnetworks.com.

Got great ideas

■ *Network World* is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@nww.com).

Ask Dr. Internet

By Steve Blass

I had to uninstall a network card, and when I uninstalled the software for it I made the fatal mistake of answering "Yes" to the message about apparent unneeded shared file deletion. Ever since then, I cannot get my company-required VPN to correctly install and run on the system. It constantly comes up with a message that states "VPN-1 Secure-Remote - Internal Error" with no explanation or error codes. How do I get the VPN reinstalled and running without completely wiping out the drive

and starting from scratch?

I did that once too with SecureRemote. Now I write down the name of the file before I delete it so I can get a copy from another machine if a program needs it later. The way back to a working version of SecureRemote in your case is to use the add/remove programs feature in control panel to remove the remains of your existing SecureRemote installation. Also, remove

whatever is left of the SecureRemote directory, then search the registry with regedit and remove all the Check Point Software and SecureRemote keys you find. Reboot, then install the SecureRemote client again and you should be good to go.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD
INSIDE THE
NETWORK
MACHINEMark
Gibbs

The SNMP show

requests with responses.

- Error status — only used by a response to indicate an error (otherwise it is set to zero).

- Error index — only used by a response to associate an error with a particular object instance (an object being a managed entity under SNMP).

- Variable bindings — These are the data fields of the PDU. Each variable binding associates a particular object instance (a managed item) with its current value (this doesn't apply to Get and GetNext requests).

SNMP Version 1 traps are structured a bit differently and also use eight PDU fields:

- Enterprise — identifies the type of managed object generating the trap.

- Agent address — the address of the managed object generating the trap.

- Generic trap type — indicates a generic trap type.

- Specific trap code — indicates specific trap codes.

- Time stamp — Provides the amount of time that has elapsed between the trap being generated and the last network reinitialization.

- Variable bindings — As in the above PDU types.

Version 2 tidied this up somewhat by using one format for all existing mes-

sage types. With the addition of one new field — PDU Type (for example, Get, GetNext, Inform, Response, Set or Trap) — the PDU looks the same as the format of Version 1 Get, GetNext, Response and Set PDUs.

But Version 2 also introduced a new request: GetBulk. The GetBulk operation was added to make it easier to access large amounts of related information without initiating repeated GetNext operations. GetBulk was designed to virtually eliminate the need for GetNext operations.

The PDU for GetBulk consists of seven fields that start with PDU type and Request ID and then gets exotic:

- Nonrepeaters — used when there are scalar objects with only one variable and specifies the number of object instances that should be retrieved no more than once from the beginning of the request. In other words, it assures nonduplicated data.

- Max repetitions — the maximum number of times that other variables beyond those specified by the nonrepeaters field should be retrieved.

- And our old friend, variable bindings.

What is really different in Version 2 is security. The header in Version 2 messages is often called a wrapper. This wrapper includes authentication and privacy infor-

mation in the form of destination and source "parties."

A party is an SNMP Version 2 entity that can initiate or receive Version 2 communication, and each party consists of a single, unique party identity, a logical network location, one authentication protocol and one privacy protocol. In addition to destination and source parties, the wrapper specifies a context — the managed objects visible to an operation.

SNMP Version 1 specified that the protocol operates over UDP and IP. The Version 2 specification is far more complex: The transport mapping document (RFC 1449) defines SNMP over other transport protocols, including OSI Connectionless Network Service (CLNS), AppleTalk's Datagram Delivery Protocol and Novell's Internet Packet Exchange, and includes instructions on how to provide an SNMP Version 1 proxy.

Well folks, that's all we have time for! On our show next week we'll feature the Management Information Base, the data structure to which SNMP requests relate. So tune in next week, same journal, same column. Until then, this is Gearhead saying goodbye.

Show your lineup to gearhead@gibbs.com.

Welcome back to the SNMP show! Yes, we're your host, Gearhead, and we'd like to start off this week with (roll on the drums please, maestro) SNMP message structure! Take it awaaaayyyy ...

Thank you us, thank you very much. We'd like to begin with what SNMP messages look like. Messages in SNMP Versions 1 and 2 consist of data wrapped in a User Datagram Protocol (UDP) message. This data consists of a header and a Protocol Data Unit (PDU), aka "payload." The header consists of two fields: Version Number and Community Name.

Version Number is 1 or 2, depending on the version of SNMP being used, and Community Name is an identifying string that names the group of managers for which the message is intended.

The PDUs of all types of messages except traps under Version 1 (Get, GetNext, Response and Set) contain the same fields:

- Request ID — a value that associates



Cool Tools

Quick takes
on high tech toys
By Keith Shaw

MicronPC launches new notebook

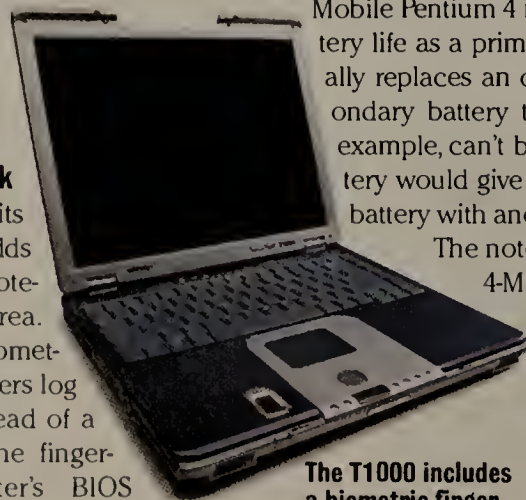
MicronPC is announcing today its new T1000 notebook, which adds unique features to the world of notebooks, especially in the security area.

Embedded into the T1000 is a biometric fingerprint scanner that lets users log on by using their fingerprint instead of a password. The system embeds the fingerprint scan into the computer's BIOS (MicronPC expanded the BIOS from 4M to 8M bytes to allow for the storage of up to 16 fingerprint scans), which Micron says is more secure than Universal Serial Bus (USB)-enabled fingerprint-scanning products.

In addition to secure logon, the software can use a fingerprint scan to replace a password in people's favorite Web sites. Users also can have important documents or folders encrypted during logoff. The documents can be decrypted only via the fingerprint scan.

Another unique feature on the T1000 lets users play audio CDs and MP3 CDs without having to boot up their computers. A part of the display cover is cut out, allowing for access to the audio playback buttons on the computer when the cover is closed. Speakers for the audio also are placed on the outside of the device.

A third feature that MicronPC is touting is the inclusion of a bridge battery on the notebook's motherboard that gives users 3 minutes of back-up power to replace the primary



The T1000 includes a biometric fingerprint scanner.

battery. A MicronPC official says secondary batteries on Mobile Pentium 4 machines cannot provide as much battery life as a primary battery. The secondary battery usually replaces an optical drive, so users who want a secondary battery to watch DVD movies on a flight, for example, can't because of this limitation. A bridge battery would give users a chance to replace the primary battery with another one and still use the optical drive.

The notebook itself includes the Intel Pentium 4-M processor with speeds of up to 2.0 GHz, 256M bytes of DDR RAM, a 20G-byte hard drive, an 8x DVD drive, ATI Mobility Radeon 7500 graphics controller with 32M bytes of memory, integrated 56K bit/sec modem and integrated 10/100 Ethernet.

Integrated 802.11b wireless (via mini PCI card) is also an option for users. The T1000 will start at \$2,050, weighs 4.9 pounds and is 1.1 inches thick.

MicronPC is targeting the government, education and small to midsize business markets with its notebooks. For more information, head to www.micronpc.com.

HP releases new desktops

Hewlett-Packard announced a new commercial desktop and two new consumer desktop models at the TechXNY show a few weeks ago. The Compaq Evo D510 e-pc is the latest addition to the Evo Commercial Desktop line. The D510 will come with an Intel Celeron or Pentium 4 with 845G

MicronPC and HP show off new PCs

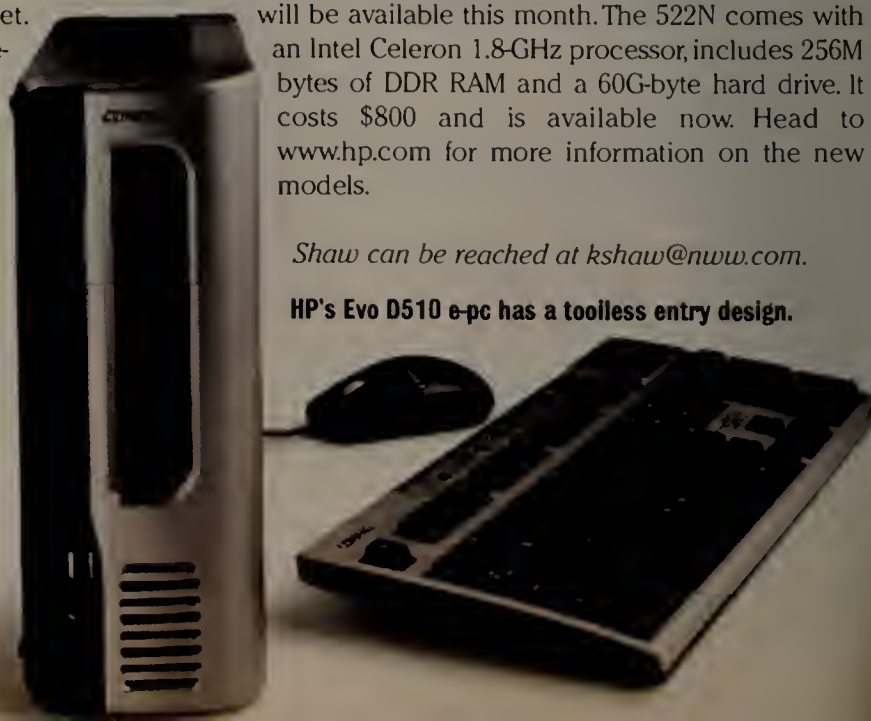
chipset and should be available later this summer. The new model has the same image as other D500 series models and has a new toolless entry design for quick and easy access to internal parts for upgrade and repair, HP says.

On the consumer side, HP announced three new models, the Pavilion 792N, 772N and 522N. The HP Pavilion 792N, which includes an Intel Pentium 4 2.4-GHz processor; 512M bytes of DDR RAM; a 120G-byte hard drive; DVD+RW/+R drive; DVD-ROM drive; 64M-byte graphics card; and integrated 1394, 10/100 Ethernet and USB 2.0 ports. The 792N starts at \$1,800 and will be available this month.

The 772N comes with a Pentium 4 chip with 2.26-GHz processor, 512M bytes of DDR RAM, an 80G-byte hard drive and 32M-byte graphics card. It starts at \$1,450, and will be available this month. The 522N comes with an Intel Celeron 1.8-GHz processor, includes 256M bytes of DDR RAM and a 60G-byte hard drive. It costs \$800 and is available now. Head to www.hp.com for more information on the new models.

Shaw can be reached at kshaw@nww.com.

HP's Evo D510 e-pc has a toolless entry design.



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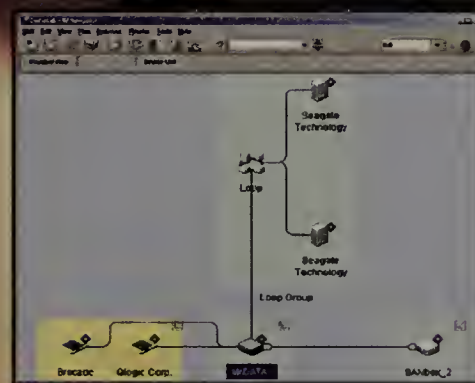
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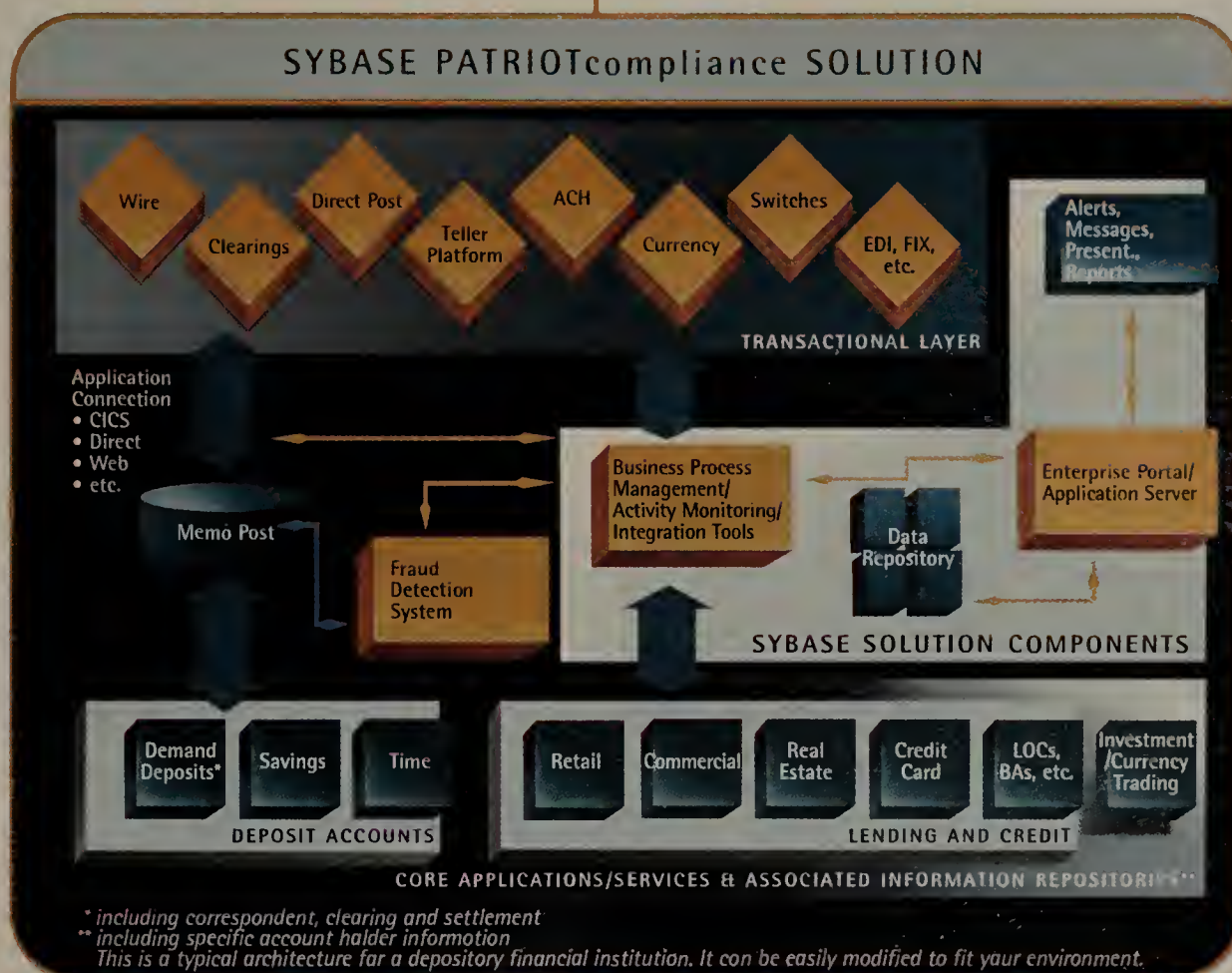
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EDITORIAL

John Dix

Survey says government is vulnerable

While the Internet plays a prominent role in the federal government's plans to streamline operations (see in our stories beginning on page 36), current e-government programs are not adequately secured.

So said 32% of 395 IT pros questioned about the government's cyber security practices. Of the people queried in the study commissioned by the Business Software Alliance (BSA), only 23%

said the government has taken adequate security precautions.

What's more, nearly half the respondents believe "it is likely the U.S. government will be subject to a major cyber attack in the next 12 months." The BSA says a major cyber attack against the federal

government would have a ripple effect on the private sector, particularly industries such as transportation and communications, along with on state and local governments.

Here are some other findings:

- 55% of the respondents said the likelihood of a major cyber attack in the U.S. has increased or strongly increased since Sept. 11 (see graphic).
- 72% said "there is a gap between the threat of a major cyber attack ... and the government's ability to defend against an attack."
- Of the 72%, 29% said the gap has increased a little since Sept. 11, while 7% said the gap has increased a lot.
- 47% said the government is devoting more time and resources to defending against cyber attacks than it did to address Y2K issues, but ...
- ... 86% said the government should devote more time and resources than it did to address Y2K.

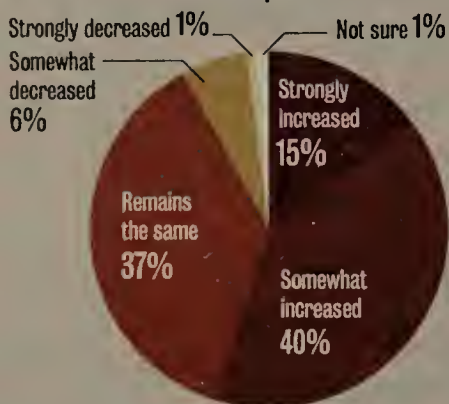
The BSA's recommendations: encrypt Web content; craft legislation to force companies/agencies to disclose cyber security attacks; and increase government funding for cyber security.

At the very least, make security a basic priority. Believe it or not, the government has all but overlooked security with some of its Internet-based initiatives. Want proof? See the story on the Department of the Interior on page 51.

— John Dix
Editor in chief
jdix@nww.com

Cyber threat

The risk of a major cyber attack in the U.S. since Sept. 11 has ...



Based on a survey of 395 IT pros.
SOURCE: IPSOS PUBLIC AFFAIRS

Test wishes

Regarding "Searching for the QoS Holy Grail" (www.nwfusion.com, DocFinder: 1122): The abilities of the equipment under test were not quantified by using a quality-of-service test device. Also, I would have liked to see a description of the denial-of-service attack and more about the actual test environment design to make a meaningful judgment.

You presumably selected equipment to test based on availability and higher-layer capabilities. It would be helpful to discuss in an article the usefulness of the higher-layer capabilities in a real-life network.

I would have liked more discussion on the difficult issues of tackling connection admission control or mechanisms to ameliorate the lack of it, apart from packet classification and priority. Even on the subject of priority, there was no mention of strict queuing capabilities, which are mandatory for any serious attempt to match public switched telephone network voice standards with User Datagram Protocol (UDP) packets.

Your test used small packets, which is recommended for networks with delay-sensitive traffic, but I got the impression you only did this to get the throughput up. Again, some commentary on the balance between packet size and WAN link bandwidth and processor packet-handling capabilities would have been nice.

Paul Norris
Principal consultant
Analyst, Ltd.
Windsor, Berkshire, U.K.

AT&T and hosting

I read the Q&A with Pat Traynor of AT&T with some skepticism ("AT&T looks to rev up Web hosting,"

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

www.nwfusion.com, DocFinder: 1123): Her comment that "The reason that business needs are changing is because of the mission criticality of the business applications and the nature of enterprise businesses" does not align with the service-level agreements AT&T offers at its collocation facilities. While the nondisclosure agreement I signed does not allow me to discuss specifics, I was unhappy with many provisions in the agreement AT&T offered me. My salesperson flatly told me that unless I could purchase \$25,000 per month of services from AT&T, I would have no leverage to get any of the provisions modified. What their stock contract provides has so many loopholes that most outages would not be covered. This is not mission-critical service.

Matthew Leeds
Vice president of operations
Gracenote
Berkeley, Calif.

Power play

Regarding your Management Strategies article "The power of users" (www.nwfusion.com, DocFinder: 1124): The concept of using "power users" to assist their less-proficient peers flies in the face of "best practice" and common sense. In addition to the impact on productivity and associated costs, you are unable to capture the effort expended.

You already have one paid resource not being productive because of a question or problem. Then you pull the power user off his real job to "help" in an area that is not his core competency.

If one of my managers came to me with a hare-brained scheme like this, I would be suspicious of his experience and competency.

Bob Hoffman
Implementation manager, help desk/deskside support
Alternative Resources Corp.
Barrington, Ill.



More online! www.nwfusion.com Find out what readers are saying about these and other topics. **DocFinder: 1121**

WORLD COM





STRATEGY SESSION

Jeff Kaplan

This has been a year of escalating scandals and never-ending revelations regarding the shady bookkeeping of major corporations and conflicts of interest among accounting firms and equity analysts. Many of these allegations have been directed at companies within the IT and telecommu-

nications industries in particular, raising suspicions about the broader business practices of every vendor or service provider in our industry. These concerns have heightened customer reticence to buy new equipment or subscribe to new services. As a result, a renewed effort to regain customer confidence is necessary.

In the IT and telecommunications industries, the trust issue doesn't start or end with corporate mismanagement or abuse. There also is an undercurrent of cynicism and distrust aimed at industry analyst/research firms and venture capitalists. Their inflated market forecasts and aggressive funding strategies encouraged vendors and service providers to spend billions of dollars over the past few years hyping half-baked products and services in new market segments that never materialized. Their bold pronouncements of revolutionary changes in computing and communications also encouraged many customers to acquire bleeding-edge technologies and poorly provisioned services that failed to meet their real business needs.

Who can network decision-makers trust in this climate of corporate deceit, when even trusted advisers appear to have ulterior motives? The

Whom can you trust?

best answer is: one another.

At a time when getting back to basics has become the unwritten rule, relying more heavily on your peers is the best path to success. This might take the form of pushing your suppliers for solid reference accounts to validate specific purchasing decisions or participating in ongoing professional associations. Becoming reacquainted with your cohorts lets you make better acquisition and management decisions, rather than respond blindly to the latest trend or forecast.

You can still justify an occasional annual trade show, if you truly intend to collect valuable insight from other decision-makers rather than T-shirts and trinkets. There also is still a place for vendor-sponsored seminars or analyst conferences, if you are equally committed to trading real-world experiences with your colleagues rather than schmoozing with your salesperson.

Vendors, research firms, conference organizers and venture capitalists can encourage this type of healthy interaction by redesigning their events and marketing strategies. We've entered a time when demonstrating how technology can solve business problems is all that matters. Designing forums that can help network managers better understand these problems and learn how to solve them will not only make them better decision-makers but more loyal customers.

Kaplan is managing director of THINKstrategies, a consultancy in Wellesley, Mass. He can be reached at jkaplan@thinkstrategies.com.

At a time when getting back to basics has become the unwritten rule, relying more heavily on your peers is the best path to success.



YANKEE INGENUITY

Tim Kraskey

The 1990s were the go-go boom years in high tech; the current decade will be a time of real soul searching. Here are 10 predictions for the decade — some bold, some that should seem obvious but are not.

- The death of the operating system. Operating systems won't go away, but their

prices will decrease dramatically. Microsoft's defense strategy against the Linux threat will be to raise the price of Office Suite to offset its operating system revenue losses. By the end of the decade, the price for Office Suite could reach \$700 per desktop.

- The resurgence of the telecom oligopoly. The local exchange carriers (LEC) will become one-stop shops with new services, but lousy service. What we need to do is separate wholesale of the last-mile facilities from the services offered over these facilities. This will take at least 10 years.

- Pervasive wireless. Wireless technology will be supported just about everywhere. If you're using a PDA, mobile phone, PC or other device, you will have access to useful information and the quality of service will actually be good. New applications will be developed serving real needs instead of just advertising and the latest Victoria's Secret fashion show.

- The birth of the integrated bill. Verizon, SBC or BellSouth will begin consolidating your long-distance, local calling, cellular and Internet service into one bill. Then they'll form relationships with suppliers of goods like Amazon to have your charges billed to your phone bill.

- Security is everywhere. Big Brother is fully watching you now. Get over it. The upside is, you will be able to make secure transactions while protecting your confidential information more easily.

- IP packets finally take over circuits. When will IP packets replace voice circuits for voice traffic? Internet bit-heads say it already has happened; Bell-heads say never. It is somewhere between. I predict we will see significant progress by 2010. It will be a 25-year process to replace most Class 5 central offices with voice-over-packet technologies. In the second half of this decade, service providers will begin offering newly

Ten predictions for the decade

integrated services, particularly in the call center area. Web-based call centers with click-to-talk features will be used for customer support.

- The emergence of fiber to the home. A LEC recently told me very-high-bit-rate DSL will never reach the neighborhoods. So how do they get the bandwidth to the home to offer the total integrated services to support data, voice and video? First, they partner with vendors that can get them there today, such as Echo Star. Next, they start planning to wire every home in the next 25 years with fiber. This will give them the bandwidth to offer many services they can't offer today.

- Computers that require no rebooting. The new operating systems will have built-in diagnostics and fix themselves. We will have self-healing networks, and Cisco will figure out how to spell carrier class, which means no downtime even for upgrades. Mission-critical applications can't be deployed if the systems they are being built on are not stable. Both Microsoft and Cisco have an obligation to take this stuff seriously and fix the problems.

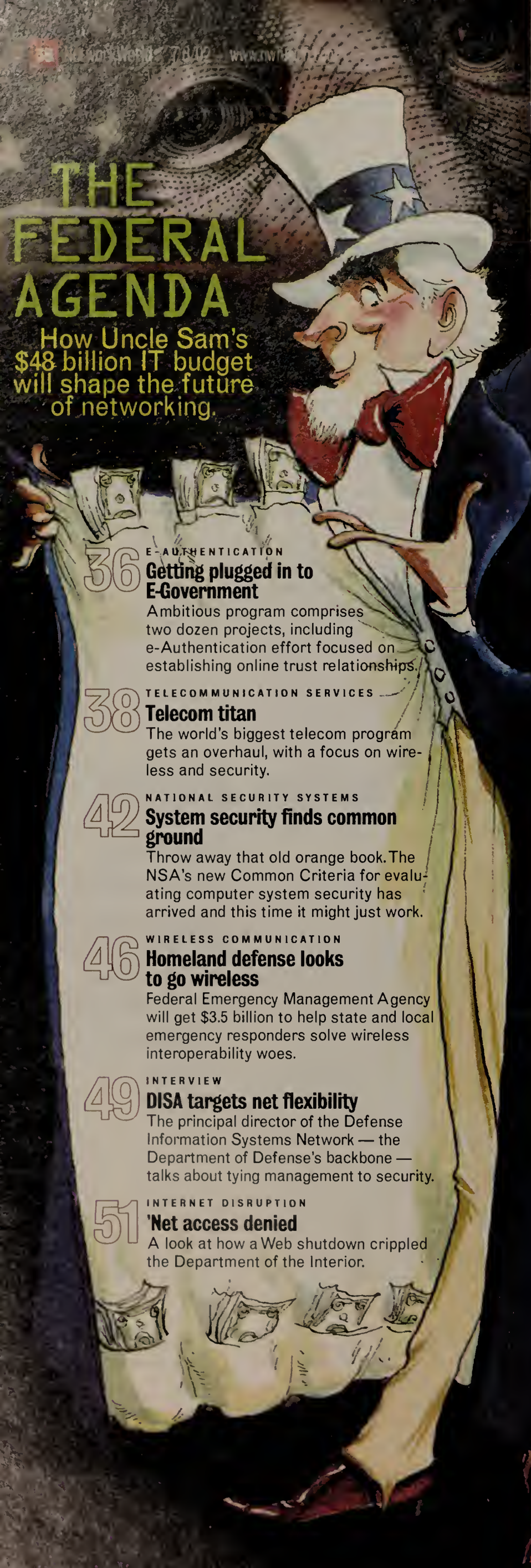
- Intelligent voice recognition everywhere. Voice recognition technology is just starting to find its way into the mobile phone networks, and soon cars will have support for voice-activated directions on their Global Positioning Systems. Voice recognition will be augmented with data-mining applications to help sift out information for call centers. Dell, Gateway and Hewlett-Packard will be early to the game with these sorts of products.

- AOL Time Warner becomes the fourth-largest phone company. AOL Time Warner will emerge as the only threat to the LECs. AOL Time Warner's next move will be to buy AT&T, WorldCom or Sprint to help it become a truly legitimate carrier. This will give AOL Time Warner local connectivity and a national footprint for offering additional services.

Now we are in a lull, but soon growth will transform the Internet era of the 1990s into the "database talking directly to database" era of 2010 and beyond. Place your bets, and let's see what the future holds.

Kraskey is managing director at YankeeTek Ventures, a Cambridge, Mass., venture capital fund for early-stage technology companies. He can be reached at tim@yankeetek.com.

Growth will transform the Internet era of the 1990s into the 'database talking directly to database' era of 2010 and beyond.



THE FEDERAL AGENDA

How Uncle Sam's \$48 billion IT budget will shape the future of networking.

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Ambitious program comprises two dozen projects, including e-Authentication effort focused on establishing online trust relationships.

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Ambitious program comprises two dozen effort focused on establishing online trust relationships

E-AUTHENTICATION

BY ANN BEDNARZ

Getting plugged in to E-GOV

Apply for Social Security benefits, reserve campground space at a national park or comment on pending legislation — all from the comfort of your Internet-connected home computer.

That's the scenario envisioned by the U.S. government under its broadly termed "E-Government" plan to simplify delivery of its services to citizens, businesses and municipalities.

The strategy is one of five that President Bush has adopted as part of his management reform agenda, which is aimed at making government more about citizens than bureaucracies.

"Just like companies were product-centered, governments tend to be agency-centered," says Mark Forman, associate director for IT and E-Government at the U.S. Office of Management and Budget (OMB). "The president wants the government to look across the agencies and focus on the citizens."

Forman is a man who could help make that happen. He oversees federal IT spending — which will exceed \$48 billion this year and \$52 billion in 2003 — and he is leading the federal government's digital remodeling.

Last fall, a Forman-led task force of 81 members from 46 agencies identified 24 "high-payoff" projects to focus on during the next 18 to 24 months. These projects will consolidate several hundred overlapping IT projects in the federal government, Forman says. Their expected payoff will be in the form of improved operating efficiencies, more targeted spending and less paperwork, totaling possibly several billion dollars in savings, the task force concluded.

For the most part, the projects fall into four categories, organized around interactions with citizens, businesses, states and localities, and internal users (see graphic at www.nwfusion.com, DocFinder: 1126). For example, Online Access for Loans will help citizens and businesses find the right loan option for their needs; Federal Asset Sales will consolidate 150 disparate sites dedicated to selling federal assets; and e-Training will provide a centralized repository of government courseware.

Forman says the current administration's E-Government projects are not cosmetic, not simply putting up Web content — which he calls "Web enablement." The federal government already has plenty of Web content, with more than 33 million Web pages and 22,000 Web sites, he says. "We do not do Web enablement. Web enablement locks in poor customer service for us," Forman says, referring to Web sites that merely put a new face on old processes.

Rather, the projects are about backstage fixes — for example, integrating multiple agencies' systems to streamline the process of applying for an economic development grant, which today could require a community to file more than 1,000 forms with 250 federal bureaus. "Pretty soon you'll see a lot better service, but it's not because there's a prettier Web site. It's because we've fixed the redundancy," he says.

In its strategizing, the task force identified potential obstacles that could derail the E-Government effort. Recurring barriers included agency culture, stakeholder resistance, resources and trust.

Overcoming close-minded agency cultures and stakeholder resistance are management issues — mitigation requires strong leadership, communication and engaging resis-

projects, including e-Authentication
onships.

THE FEDERAL AGENDA

E-Government

tant parties, the task force determined. Forman says collaboration among agencies is sometimes very easy. "The people have wanted to collaborate, they just were looking for leadership. Now the White House, via my office, is providing that," he says.

The resources issue might be mitigated by moving resources to programs with the greatest potential, the task force says.

The trust issue, it turns out, requires an initiative of its own: e-Authentication.

Security plus privacy

E-Authentication is one of 24 official E-Government initiatives, though it differs because it's an infrastructure project that is intended to be used by the other task-oriented initiatives.

A linchpin of E-Government, the authentication project will set a standard for determining identity, says Jeanette Thornton, portfolio manager for e-Authentication at OMB. Among the 22 other projects, there is a need for such features as access control and digital signature support to ensure secure communications and transactions. Rather than address authentication separately for each initiative, the e-Authentication project provides a shared service that lays out a method for proving identity to the federal government, says Thornton, who acts as a liaison between OMB and the e-Authentication project team.

Granularity is a key part of e-Authentication. Different applications require different levels of security, which need to be defined through business policies. Potentially, a user will present a credential — a password, certificate, smart card or token — to access to the appropriate apps.

"There are lots of transactions buried in 22,000 Web sites, lots of opportunities for authentication," Forman says. "To allow a citizen to do a simple transaction that cuts across agencies, the authentication infrastructure has to be built."

Some of the funding to do that is in the bag. In April, OMB allotted \$2 million to get the e-Authentication project started. Today, the project is in the definition-and-requirements stage. Steve Timchak, program manager for the e-Authentication initiative, leads the project team. Timchak is with the General Services Administration (GSA), which is the agency charged with managing e-Authentication.

He says the project team has three primary tasks: determine the authentication requirements for each of the E-Government initiatives; build an authentication gateway to map authentication levels to the different applications; and provide common solutions for varying authentication needs.

Basically, it's about providing a level of trust appropriate to the application, Timchak says. Some transactions require strong authentication, others won't. Making a payment to the Internal Revenue Service might require a public-key infrastructure (PKI)-type credential, whereas for browsing business loan options, an ISP-provided personal identification number and password might be sufficient.

The key is not to grossly over- or under-secure any transaction. "We certainly don't think that we're going to issue digital credentials to 285 million Americans by any means," Timchak says.

To determine the level of security required, the GSA-led project team is using a modified version of the Operationally Critical Threat, Asset and Vulnerability Evaluation tool developed by the CERT Coordination Center at Carnegie Mellon University.

On the security technology front, the government is getting help from Mitretek Systems, a nonprofit organization that held a "technical exchange day" in June to brief security vendors on the government's authentication plans — at least at a conceptual level. The next step is to issue a request for information to vendors, followed by a request for proposal.

Based on its interaction with industry vendors, Mitretek then will develop, build and deploy a prototype gateway, which team members expect to be operational — and processing live transactions from at least one other E-Government project — in September. Full deployment of the gateway will follow a year later, according to estimates.

"We have a pretty rigorous schedule we have to adhere to," Timchak says.

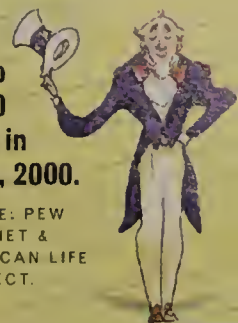
Fortunately, GSA and company aren't starting from scratch. The e-Authentication initiative builds on existing government efforts to secure Internet transactions. The GSA, through its Access Certificates for Electronic Services program and the National Finance Center, has established models for acquiring technology to authenticate users, Timchak says.

"What we would like agencies to consider is taking a look at those contract vehicles for PKI that are already in place within the government," Timchak says. "Any business case certainly ought to consider what's already in place and use it if it makes sense to." ■

BELTWAY CONFIDENTIAL

Citizens online.
Sixty-eight million
American adults have
used government
agency
Web
sites, up
from 40
million in
March, 2000.

SOURCE: PEW
INTERNET &
AMERICAN LIFE
PROJECT.



■ E-AUTHENTICATION

PKI particulars

The concept of a single security gateway for authenticating users of e-government services might seem straightforward, but the reality of assembling such a beast can be pretty complex. Here are a few issues the e-Authentication project teams might face:

★ **Component interoperability.** A registration authority from one vendor, smart card from another vendor and certificate authority from a third company often just don't play together. "Some of the standards were never completely agreed on by the important vendors, other standards are very complex. There are details that can go wrong," says Daniel Blum, an analyst with Burton Group and a *Network World* columnist.

★ **Application integration.** It's a Catch-22: There hasn't been great incentive to adopt public-key infrastructure because few applications have been integrated with PKI — and because PKI adoption is low, few developers have done the work required to build complex PKI support into their applications.

★ **Policy interoperability.** The whole government hasn't agreed on a common policy classification scheme, so it might be that what the Air Force considers sensitive and what the Internal Revenue Service considers sensitive and what General Services Administration considers sensitive are three different things.

★ **Scalability.** Entities such as the Federal Bridge Certificate Authority (a trust clearinghouse that handles interoperability among federal agency PKI domains) have been running in pilot mode and therefore don't have the infrastructure to handle millions or billions of transactions per day — which is what the infrastructure might have to deal with if the government starts enabling widespread PKI. To set up such a huge infrastructure will take lots of time and money, Blum says. "Realistically they'll probably do something like crawl, walk, run. But right now they're barely crawling," he says.

★ **Product pool.** Choosing vendors with staying power is key. Many of the small companies that provide PKI products have been hammered by the poor economy.

— Ann Bednarz

Reinventing **FTS 2001**, the mega-telecom contract.

TELECOMMUNICATION SERVICES

BY CAROLYN DUFFY MARSAN

THE FEDERAL AGENDA

Telecom titan

The federal government is entering a new era for telecommunications services as it embraces competitive market dynamics and a mission focused on security and reliability. This shift is evident in changes to FTS 2001, the government's primary vehicle for purchasing voice and data network services.

Long split between WorldCom and Sprint, the FTS 2001 program was recently opened to Qwest and AT&T (WorldCom's share of that split has been thrown into question by the company's financial crisis). The result is increased competition for government business and speedier technology upgrades, as carriers bolster their FTS 2001 offerings to reflect their commercial product lines.

Additionally, the Sept. 11 attacks have had a ripple effect on FTS 2001, which is trying to reinvent itself as a means for ensuring continuity of agency operations. A slew of managed network services, security tools and alternative transport services are being added to FTS 2001 to accommodate the cybersecurity requirements.

"Sept. 11 was a watershed event for FTS 2001," says Dennis Groh, who oversees the program for the General Services Administration. "It jump-started us into [offering] mobile, wireless and data security services with a vengeance."

The contract supports 18 federal departments, including Agriculture, Justice and Health and Human Services (HHS). It also serves 14 independent agencies, including the Social Security Administration (SSA). Any one of these federal customers dwarfs most corporations in terms of number of users, and amount of traffic.

Annual expenditures on the eight-year program are holding steady at \$600 million, even though prices for individual services have dropped an average of 20% per year.

Unlike its predecessor contract FTS 2000, FTS 2001 is optional. Federal network executives can decide whether to use FTS 2001 for voice and data network services,

More than half of the data traffic is frame relay rather than newer IP-based services. ATM is also popular in the federal market, often used as the backbone for frame-relay traffic. Among the agencies using ATM backbones to carry frame relay traffic are SSA and the Department of the Interior.

SSA used the program to overhaul its network, which links 1,775 sites and 85,000 users.

SSA's old network relied on 56K bit/sec dedicated circuits bridged together in a flat design. Video teleconferencing had to be run on a separate network, and the old ones couldn't support subnetting, which is required for directory services.

The new network, provided by WorldCom, has a DS-3 ATM backbone that links SSA's National Computer Center in Baltimore with six major nodes. The rest of the locations have 128K bit/sec frame relay circuits.

"It's not that our old network was failing or that it wasn't high-performance, but it didn't have the scalability and it didn't have the ability to integrate voice, video and data like newer technologies," says Jim Preissner, associate commissioner for telecommunications at SSA.

Preissner says SSA spent about \$30 million on the upgrade, but used \$9 million in transition funds available from the GSA. By going with frame circuits, SSA saved \$50 million vs. the cost of doubling its bandwidth using dedicated circuit technology.

"We had additional discounts and credits from WorldCom that reduced the cost by half," Preissner says. "That made it very economical."

The transition took 18 months and was completed in December. Next year, SSA plans to double the bandwidth again to increase all its frame relay circuits to 256K bit/sec.

"Anything this big has its bumps,"

Preissner acknowledges. "There were a number of months where we were upgrading 200 sites per month. We had some difficulties getting started because we had to get the core infrastructure in place in the National Computer Center... But it was a very successful network transition given the size and complexity of the network."

Diana Gowen, vice president of government markets at WorldCom, says most agencies seem content with the quality of service and price they're getting for ATM and frame relay. She predicts that when agencies move off high-speed frame offerings, they will migrate to private IP networks.

"We do have agencies looking at private IP networks, including U.S. Geological Survey, NASA and HHS," Gowen says. "They are not moving whole hog into VPNs because... of security concerns."

That's not to say that agencies don't have IP traffic. Internet and intranet traffic are growing dramatically for federal agencies, but they tend to keep their mission-critical data traffic on legacy technologies.

"I perceive a wariness of IP because of all the publicity around hackers, worms,

Data traffic drives FTS 2001

Voice 35% Data 65%

Total: \$600 million per year.

FTS 2001 split among carriers

Sprint 34% WorldCom 66%

Total: \$600 million per year*.

*Both contractors guaranteed a minimum of \$750 million over the eight-year life of the contract.

SOURCE: GENERAL SERVICES ADMINISTRATION



"Sept. 11 was a watershed event for FTS 2001. It jump-started us into [offering] mobile, wireless and data security services with a vengeance."

Dennis Groh, acting, assistant commissioner in the office of service delivery at GSA's Federal Technology Service

and they can choose which carrier they want. Overwhelmingly, they've chosen WorldCom, which has 66% of the program's revenue to Sprint's 34%, GSA says.

FTS 2001 offers a full suite of voice and data services, including toll-free services, private lines, frame relay, ATM, video teleconferencing and Internet access. Newer offerings include managed network and security services, including VPNs.

The majority of the traffic on FTS 2001 is data, which represents 65% of the expenditures compared with 35% for voice services. Data traffic is growing at about 30% per year.

See FTS 2001, page 40

Lighting a Path to Resiliency

Cisco COMET portfolio provides an optical solution to demands for network reliability, flexibility and disaster recovery.

BY NOW enterprises have learned only too well that providing network resiliency is a business imperative, not a luxury. But questions remain in terms of how best to ensure that a company can recover from any type of disaster, and that employees have uninterrupted access to the services and applications they need to do their jobs.

The issue comes down to two words: protection and agility. Enterprises need to protect their networks from any single point of failure, while being agile enough to rapidly recover from a disruption and deploy applications wherever they are needed. While these are hardly new concepts, they have taken on new urgency.

That sense of urgency is leading some users to discover new ways to meet the demands for protection and agility. A prime example is optical network technology, as embodied in the Cisco Systems Complete Optical Multi-service Edge and Transport (COMET) portfolio. Cisco COMET is a comprehensive product portfolio designed to integrate voice, video, data and storage applications over a single, end-to-end multiservice optical network. Cisco COMET enables enterprises to deploy highly fault tolerant networks that have the bandwidth and flexibility required to support applications such as data mirroring and backup, storage-area networks (SAN), network-attached storage (NAS) and voice over IP, which can be critical lynchpins in a comprehensive disaster recovery plan.

"Every enterprise must develop plans and procedures to become a resilient organization," writes David Neil, editor in chief of the Enterprise Networking segment of Gartner, Inc.'s recent Spotlight series of reports on building resilient organizations. "Not having such a strategy places the enterprise at enormous risk and could leave it in a situation from which it may never recover."

Building in Resiliency

From an IT perspective, reducing the risk of a business-threatening event starts with designing a network that provides for high availability, with no single point of failure and rapid recovery times.

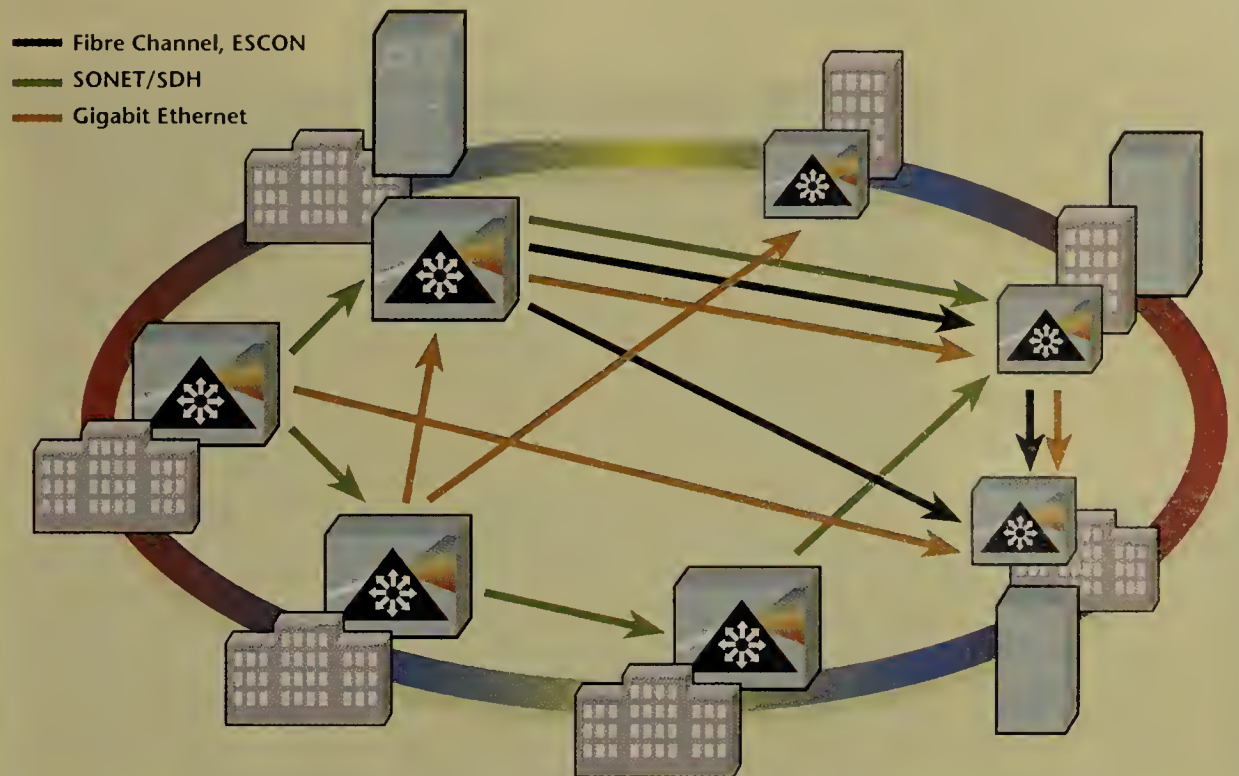
Guaranteed access to data is another must, one that is driving many enterprises to build SANs and NAS facilities. In either case, a geographically separate backup storage facility, if not an entire backup data center, is required.

This presents a challenge for many enterprises given the vast difference in bandwidth typically available in a LAN environment vs. a MAN or WAN. Enterprises can meet that challenge using optical technology, lighting up dark fiber or individual wavelengths to construct a metro IP network that provides the high bandwidth and network resiliency that applications like storage require.

"The CISCO COMET portfolio is designed to keep business operations functioning in the event of a failure, with the ability to recover from a fiber outage in less than 50 ms," says Chris McGugan, senior manager, technology marketing for Cisco. "We've spent time with companies like IBM and EMC in getting Cisco optical solutions certified for deployment with their storage

A Resilient Enterprise Built on DWDM

The Cisco COMET portfolio includes DWDM solutions that enable network consolidation over a single multiservice, optical infrastructure that offers scalability, flexibility and resiliency.



systems, so that we meet their latency and distance requirements."

Cisco has also worked to ensure that all the benefits inherent in its Architecture for Voice, Video and Integrated Data (AVVID) extend to Cisco COMET. AVVID is a framework for leveraging the intelligent network features inherent in the Cisco IOS and Catalyst operating systems to provide security features such as authorization, authentication and accounting. AVVID also addresses performance issues, providing load balancing and advanced quality of service (QoS) features. The net result is that every application – be it voice, data or video – gets the network performance it requires.

Now a customer's existing Cisco enterprise networking solutions can tie in to an optical infrastructure, while maintaining all the security and performance monitoring features embodied in Cisco AVVID. So customers not only get massive amounts of bandwidth, they get bandwidth that is application-aware.

Cisco COMET delivers on the well-known fault-detection and traffic re-routing capabilities of SONET, but goes a step further by providing support for the emerging Resilient Packet Ring (RPR) standard, which is based on Dynamic Packet Transport technology developed by Cisco. Both SONET and RPR networks can route around failures in less than 50 ms, but RPR offers more flexibility and a lower entry cost, McGugan says. Instead of installing a SONET multiplexer at each location, enterprises can terminate an RPR connection directly into their Cisco COMET devices or other Cisco equipment such as the Catalyst 6500 and Cisco 7600 Series router. RPR offers another advantage in that it doesn't require users to reserve extra bandwidth to be employed in case of a failure of the primary path, as does SONET.

Cisco COMET devices also perform extensive performance monitoring, such as by checking bit error rates and detecting Cyclical Redundancy Checking (CRC) errors that indicate signal degradation. That enables the devices to automatically switch traffic to a backup path when the primary is not performing properly.

In short, enterprises are finding that converging their voice, video, data and storage networks over a single high-performance optical network can not only provide cost savings and simplified network management, it can be an important part of their business resilience strategy.

Learn more about optical networking:

Download the white paper, "Cisco COMET: Optical Networking Solutions for the Enterprise," from: www.nwfusion.com/gocc/opticalwp.

FTS 2001 Continued from page 38

viruses and Trojan horses. You never hear that about frame or ATM," says Dave Prigel, manager of FTS 2001 engineering and revenue services at Sprint.

One big shift this year is the addition of

two carriers under the FTS 2001 program. Qwest was added to provide Web hosting services, while AT&T will offer its full suite of voice and data services. Neither carrier has a guaranteed minimum level of revenue from the government, as do WorldCom and Sprint, which were each promised \$750 million.

"The more partners we have on FTS 2001, the more leverage," Groh says.

The new FTS 2001 providers plan to pursue opportunities such as managed Web hosting initiatives spawned by Sept 11. Sprint has signed up the Department of Labor, the Bureau of Public Debt and the Navy for its Web hosting services. Many

other agencies are developing contingency plans for cyber attacks.

"Many federal data centers keep their back-up tapes in the building. They have no redundancy in their staff support," says Jim Payne, senior vice president for government markets at Qwest. "With our Web hosting service ... on a moment's notice an agency can move its data to California."

The GSA is beefing up its FTS 2001 offerings in several areas, including managed security, land and mobile radios for first responders, and satellite services.

"What we're doing is packaging these services with the [prime contractors], and allowing agencies to buy them by the drink and not by the case," Groh says.

GSA is establishing five levels of security services that it will offer on the FTS 2001 contract later this year.

In addition, GSA is adding new transport mechanisms such as satellite communications so agencies can develop diverse systems that are not dependent solely on terrestrial communications.

GSA's plan for FTS 2001 was to aggregate traffic in a long-term contract to provide agencies with lower prices. By all accounts, the government has done a good job of driving its rates below the drops seen in commercial accounts.

"We have 20% discounts across the board on all services," Groh says. "Our rates have been going down an average of 20% per year, every year."

Long-distance voice rates dropped from 29 cents per minute on FTS 2000 to 2 cents per minute on FTS 2001.

Carriers say they are able to offer these low rates on FTS 2001 because of the volume of traffic and the government's long-term commitment.

"Name a commercial client that will give you an eight-year contract," says Don Teague, vice president of civilian sales for AT&T Government Solutions. "Term is non-trivial when it comes to pricing."

In addition to the low rates, the GSA is stepping up its efforts to improve the quality of service on FTS 2001. That business mentality is trickling down to the FTS 2001 program in several ways:

- GSA has slashed the time it takes to modify an FTS 2001 contract from nine months to 40 days.

- Provisioning of new services dropped from 90 days to 30 days.

- With a new Web-based billing system, customers can access their bills in 45 days instead of 60 days.

"FTS is trying very hard to improve the efficiencies of its processes," says Ray Bjorklund, vice president of consulting services at Federal Sources, a research firm. "Although there's always some grumbling from the carriers about why should it take one month to add a new service instead of two days."

One recent improvement is how quickly the carriers can add new services.

"Our offerings on FTS 2001 are virtually identical to our commercial offerings," Sprint's Prigel says. "We are very, very close to introducing them at the same time they are launched commercially" ■



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Beginning this month, all new national security systems must pass **Common Criteria** testing.

NATIONAL SECURITY SYSTEMS

BY ELLEN MESSMER

THE FEDERAL AGENDA

System security finds common ground

D

on't bother dusting off that little-used Orange Book before dumping it in the trash. The federal government's new Common Criteria manual for computer security evaluation just arrived, and this time it has global backing so it just might work.

The National Security Agency (NSA) has ordered that, as of this month, all new national security systems have to run operating systems, applications, firewalls and other security equipment that have passed the stringent testing spelled out in Common Criteria. What's more, the purchasing mandate may be expanded to include civilian agency purchases.

Common Criteria marks the first time governments around the world have united in support of a security evaluation program, and that should help expedite testing and lower costs, problems that plagued the former approach.

"It used to be very expensive to evaluate products under the Orange Book scheme," says Mary Ann Davidson, chief security officer at Oracle, the first database vendor to win the coveted Common Criteria certification for its products. "One of the benefits of the Common Criteria is the mutual recognition by all the nations involved."

That means that the 15 countries backing the Common Criteria agree to accept the lab results without requiring more testing. "Common Criteria is good for us because it makes us build better products," Davidson says.

By all accounts, the NSA's Orange Book program, in which the NSA forced vendors through prolonged product testing at Ft. Meade, Md., was a dismal failure. And the government's failure to buy Orange Book tested products, which were often out of date after years of testing, was a blow to vendors that invested huge sums in Orange Book evaluations (see story, page 44).

As an international movement, CC has expanded since its start as a collaborative effort by five countries in 1996. Today, 15 nations formally recognize Common Criteria and two dozen labs around the world are accredited to perform CC evaluations. Common Criteria, as a process, has been canonized as an ISO standard.

In the U.S., the mandate to buy CC-evaluated products stems from a directive issued two years ago by the NSA. This directive, named The National Security Telecommunications Information Systems Policy No. 11 (NSTISP#11), primarily affects buying habits in the Department of Defense. But civilian agencies and outside government contractors that process sensitive government data also need to comply.

"We have systems at Commerce [Department] and the State Department that run national security systems," says Ron Ross, director of the National Information Assurance Partnership (NIAP). NIAP is the collaborative effort by the NSA and the National Institute for Standards and Technology (NIST) to foster U.S. participation in the Common Criteria program.

Products that need to meet CC requirements include databases, operating systems, firewalls, biometrics and other security software and hardware, including smart cards. About 75 products have received CC certification, a process that can take three months to more than a year.

The OS and the CC

Ross says the most important component Common Criteria evaluates is the operating system. The ideal situation, he notes, would be to have a CC-evaluated security product, such as a firewall, running a CC-evaluated operating system. However, there are a limited number of CC-certified operating systems. SGI last month had its Trusted IREX 6.5 and its standard IREX 6.5 operating system certified.

"We're happy to hear about this," says Mike Clancy, chief scientist and deputy technical director at the U.S. Navy's Fleet Numerical Meteorology and Oceanography Center in Monterey, Calif., which uses the Trusted IREX server in its computational analysis on weather and wave heights. If Fleet Numerical wants to purchase additional Trusted IREX servers, there won't be a problem with the NSTISP#11 purchasing directive.

Much of what Fleet Numerical does for the Navy, Air Force and intelligence agencies is unclassified. But because a portion of the work is classified, Fleet Numerical must abide by security rules that prohibit mixing classified and unclassified data. The Trusted IREX server, which has multilevel security compartments, lets Fleet Numerical isolate different types of data on the same server.

While it's not clear how the CC mandate will be policed, the issue could arise during the periodic audits done by the Defense Information Systems Agency to ensure that proper security procedures are being followed.



"One of the benefits of the Common Criteria is the mutual recognition by all the nations involved."

Mary Ann Davidson, chief security officer, Oracle

Sun has had two versions of its operating system CC-certified. Solaris 8 was certified at the Logica lab in the U.K., as was a "trusted" version with strong access control, security labels and software compartmentalization.

Those evaluations, which required a year each, cost Sun hundreds of thousands of dollars, according to Solaris product line manager Mark Thacker. Sun has no immediate plans to submit Solaris 9 for CC evaluation.

As for Microsoft, it submitted Windows 2000 for evaluation to SAIC's lab a year ago, but there's been no announcement on CC certification.

See Common Criteria, page 44

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Common Criteria Continued from page 42

Federal agencies shopping for software for national security systems can ask for an NSA waiver to avoid the CC purchasing mandate. But it's not expected to be easy to get one, Ross says. On the other hand, he says the NSA probably won't take a hard line if a product — particularly the operating system — is in the evaluation process.

Software vendors that have invested considerable time and money in shepherding their products through the process are hoping the NSA doesn't grant waivers too easily.

Security's seven virtues

Oracle has had its 7, 8, and 8i database products evaluated and certified at the Logica lab in the U.K., which examined the source code to ensure that access control and encryption worked as advertised. An option for these databases, called Oracle Labeled Security Release 8.1.7, adds a way to label data for security purposes and is under review.

"It cost hundreds of thousands to a million dollars per product to do CC evaluation," Davidson says. "We're the first database vendor to achieve it." There are seven designated grades of Evaluation Assurance Level and Oracle has targeted EAL4 for all its products so far. EAL1 is the lowest and EAL7 the highest.

Although complex to decipher, the EAL scheme basically says EAL1 is appropriate when requirements for security are "not serious." EAL2 ups the ante in asking the product developer for design information and testing "consistent with good commercial practice." At EAL3, the product is going to be "methodically tested and checked" in a CC-accredited lab in a search "for obvious vulnerabilities."

At EAL4 — described as "the highest level at which it is likely to be economically feasible to retrofit to an existing application" — the source code is examined,

and the vendor has to be prepared to "incur additional security-specific engineering."

EAL4, the highest CC certification level doled out for the 75 products tested to date, is the highest level that's recognized by all CC country signatories. Above that, vendors are likely to see specific demands from individual countries.

"Over EAL4 would be horribly expensive," says Don Davis, chief architect of trusted technologies at Veridian, the San Antonio, Texas, systems integrator that develops customized secure e-mail and database applications for the Department of Defense.

The Common Criteria describes EAL7 as being for applications in "extremely high risk situations where the high value of the assets justifies the higher costs."

This April, Secure Computing received EAL4 for the Gauntlet firewall (purchased from Network Associates) after a review that took more than a year in CSC lab in Australia, says product marketing manager Jason Lamar.

Why a lab in Australia? Lamar says Secure Computing had business opportunities there and the Australian government tends to have its own demands related to CC.

An uncommon criteria?

Several vendors say the Australian government prefers to have CC product testing done in CC labs with so-called protection profiles defined by Australia.

There are numerous of these protection profiles — which are sometimes created by the vendor and sometimes standard under the CC program — for each product category. The profiles get to the meat of what a product promises to do. For instance, Sun Solaris 8 and Trusted Solaris received EAL4 certification. But the protection profiles for Trusted Solaris are more demanding.

"There's only controlled access described for Solaris 8," Sun's Thacker says. "But there's role-based access protection defined in the Label Security Protection Profile. Unfortunately, the way the information is presented on the Common Criteria Web sites, they highlight the EAL level not the protection profile."

But profile preferences have some vendors saying CC has a ways to go to become fully adopted as an international software testing program.

"Our protection profiles were accepted in the U.S. and Canada, and generally in the U.K., but not in Australia," says Gary Moore, senior architect for global governments at Entrust, which has had its Entrust Authority 5.1 public-key infrastructure suite evaluated in the Syntegra lab in the U.K. at EAL3. The governments of Britain and Australia specifically state a preference for homegrown protection profiles, he says.

"There's still a country-by-country approval, which is a major issue," Moore says. The time needed to get through the entire process is causing Entrust to submit upcoming products for testing even before they're generally available.

Despite the costs and obstacles, vendors are proud to have made it through the testing and hope it will give them a competitive edge in the government market. Although a year sounds like a long time to have a product undergo testing, observers note this is faster than Orange Book testing.

"It typically took NSA over two years to do this testing, and that's why NIAP started up, so you wouldn't have to do this with the government," says Gartner analyst John Pescatore.

Common Criteria is no silver bullet, because security experts might discover new holes in CC-evaluated products (this occurred with Solaris 8 a month ago). "Common Criteria is better than nothing," Pescatore says. "But it doesn't replace vulnerability testing."

CC is a process in motion, and in the U.S. there's talk about expanding purchasing mandates and testing to equipment not yet included, such as intrusion-detection systems. NIAP director Ross says NIST and NSA are considering whether to have protection profiles for Web browsers. And he's working on a set of unified federal guidelines for use of CC.

"After Sept. 11, there's been interest in making Common Criteria mandatory for all agencies," Gartner's Pescatore says. ■

COMMON CRITERIA

Orange Book

Before the arrival of Common Criteria, the Department of Defense and National Security Agency demanded products conform to the "Orange Book" criteria, so-called because the security evaluation guidelines had an orange cover.

Dozens of vendors, including Sun, Oracle, DEC, Novell and SGI, dutifully went through years of Orange Book testing in the late 1980s and early 1990s to obtain ratings such as "C2" and "B1", which designate lower and higher security levels. An executive order in 1990 from President Ronald Reagan said government computer systems storing sensitive data would have to be C2-equivalent by 1992. A commonly heard rallying cry at that time became "C2 by '92!"

But by all accounts, that never happened. The government never purchased enough Orange Book-certified products to justify the amount of money the IT industry poured into having their products certified.

Many reasons have been given for this over the years. Military IT departments sometimes admitted they found trusted systems too complex or expensive. But clearly, a main problem was that it typically took two to five years or more to test one product. In the fast-paced IT industry, changes rendered these Orange Book-certified products obsolete by the time testing was done.

"The reason the testing took so long was that NSA did the testing," says Gartner analyst John Pescatore, who worked for NSA in the Orange Book era. "That's how the National Information Assurance Partnership [NIAP] started up, so you won't have to do this with the government."

The U.S. government agreed it was time to turn this job over to accredited commercial labs around the world.

NIAP, a joint effort between NSA and the National Institute of Standards and Technology, has played a key role in fostering the international Common Criteria security evaluation program, which was launched in 1996 with the U.K., Germany, France and the Netherlands. The countries backing the effort has since grown to include Australia, New Zealand, Canada, Finland, Greece, Israel, Italy, Norway, Spain and Sweden.

— Ellen Messmer



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The Common Criteria for evaluating information system security is enshrined as the international standard ISO/IEC 15408. The global community backing Common Criteria meets each year at the International Common Criteria Conference to discuss the standard's development, the accredited labs and emerging products.





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Challenge is getting communications systems to speak the same language.

WIRELESS COMMUNICATIONS

BY JENNIFER MEARS

THE FEDERAL AGENDA

Homeland defense looks to wireless

Moments after American Airlines Flight 77 crashed into the Pentagon, emergency workers from around Arlington, Va., were on the scene. Thanks to a mutual aid agreement, fire, police and emergency medical personnel, the so-called first responders, could communicate via handheld radios and other devices over a trunked 800-MHz radio system.

But as the scope of the disaster became apparent and reinforcements from state and federal agencies arrived on the scene, interoperability problems arose because these agencies operated on different frequencies, and communications couldn't pass from one system to another.

"9/11 has become an opportunity for people to understand how important things like integrated technology really are," says Sean Kirkendall, director of public affairs at PSComm, a consultancy focusing on public-sector technologies.

The problem is not new. Emergency workers faced interoperability woes at the Oklahoma City bombing, the Columbine High School shootings and other disasters.

But in the aftermath of Sept. 11, there is more muscle and more money directed at the problem. In fact, the need to deploy more efficient communications infrastructure among first responders nationwide has become a federal priority.

The Federal Emergency Management Agency (FEMA) is slated to get about \$3.5 billion in the proposed 2003 to help state and local governments better equip themselves against terrorist attacks. Much of that money will be doled out in grants to help those agencies set up secure and interoperable communications systems.

That's a task being headed by FEMA CIO Ron Miller, who has been meeting with state and local government officials and industry members as he fashions criteria, standards and guidelines to use when granting funds for communications projects. No specific technologies have been settled on yet, but Miller says he hopes to have guidelines in place by year-end.

"We think it would be a mistake to settle on a specific technology right now because we haven't evaluated all the solutions," he says. "In the best of all possible worlds, everybody would have compatible radios, and networks would be integrated. But that's not the way the world is right now."



First responders at the Pentagon were able to communicate over a trunked wireless radio system.

First step is bridging

Miller says FEMA initially wants to use bridging technologies to help agencies integrate disparate networks. As Mike Worthington, general manager of Safety and Security Solutions at Motorola, says, "Right now, we think there are \$40 billion to \$50 billion worth of radio networks that have been installed that just cannot be thrown away overnight."

PSComm says FEMA is taking the right approach by advocating bridging as an initial response. "There are technologies being used right now that allow for patching that can be implemented very quickly and cheaper than an 800MHz build-up or something along those lines," Kirkendall says.

John Cohen, president and CEO of PSComm, points to a project underway in Maryland, where state police communications centers are being linked by an ACU-1000 radio interconnect device manufactured by JPS Communications. The ACU-1000 can interconnect disparate systems including high-frequency radios, land mobile radios on various frequencies, cellular, wireline and satellite communications.

Other areas FEMA should look at are helping agencies set up wireless data networks and providing the middleware so responders on the scene can link into legacy data information, Cohen says. Miller says other technologies he's looking at include satellite networks, allocating spectrum for public safety emergencies and setting up priority access on public cellular networks.

When purchasing new equipment, Miller says FEMA will issue standards that give agencies flexibility when it comes to the communications systems they must deploy.

See Wireless, page 48



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Public safety officials have trouble communicating in operational situations one-third of the time.

SOURCE: PUBLIC SAFETY WIRELESS NETWORK PROGRAM



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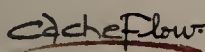
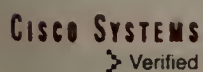
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Wireless Continued from page 46

"The guidelines will not mandate a specific manufacturer's solution, but it will set parameters under which manufacturers can build systems... as long as they have the capability on the public safety

side to interoperate," he says. "That way [government agencies] can choose based on price, flexibility, features or whatever else they need."

Vendors seem to agree. For example, Motorola and Symbol Technologies say they are committed to open standards. Motorola manufactures radio systems that

comply with standards developed by the Association of Public Safety Communications Officials that let disparate radio systems communicate.

States take the lead

In the meantime, states and local agencies haven't been idle. Many states began overhaul projects long before Sept. 11.

In 1998, the deadliest tornado in South Dakota's history hit the small town of Spencer, about 45 miles west of Sioux Falls. At that time, South Dakota emergency agencies were operating with a hodgepodge of radio systems.

"The governor was one of the first to arrive on the scene, and as [emergency personnel] came from 50, 60, 80 miles away, from every direction, what he saw was nobody could talk with anybody," says Otto Doll, commissioner of the Bureau of Information and Telecommunications in South Dakota.

The trouble was the agencies were all operating on different frequencies. "People were coming in with lowband 39 MHz, 800 MHz, 150 MHz, 450 MHz. Some of them were analog. And heaven help you if you

wanted to send any data," Doll says.

After that, South Dakota Gov. William Janklow made it a priority to set up an interoperable communications system for all agencies within the state. South Dakota is now in the process of transitioning to a 150-MHz digital trunked network, Doll says.

He says he's hoping to get money from FEMA to help expand the program. He's also encouraging neighboring states to adopt the same frequency so that interoperability can cross state lines.

But it's no easy task. Any net manager knows the challenge in unifying communications among legacy departments or bringing systems into compatibility after a merger. Imagine doing that for hundreds, maybe thousands of disparate systems.

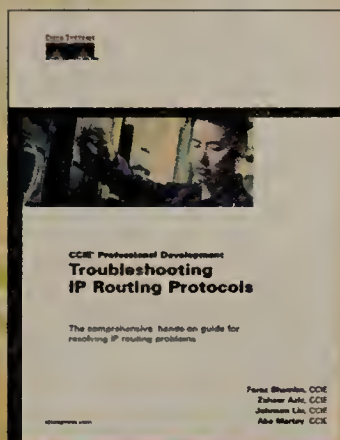
Ray Bjorklund, vice president of consulting services at Federal Sources, a market intelligence firm focusing on public-sector IT says bluntly: "Ron's [Miller] got his work cut out for him."

Network World Events Editor Sandra Gittlen contributed to this story.

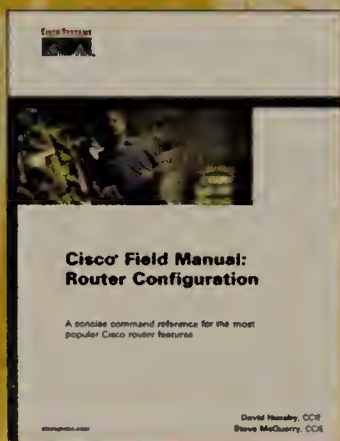


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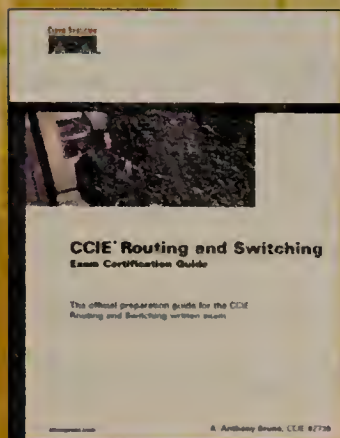
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WIRELESS STANDARDS

Pennsylvania agencies standardize on 800MHz

For the past five years, Pennsylvania has been upgrading the communications systems state agencies use, with the goal of making the systems interoperable. On Sept. 11, after a plane crashed into a field southeast of Pittsburgh, it became frighteningly clear how valuable the new system will be.

"I was in the emergency operations center shortly after the incident in New York and was there most of the night. I think everyone at that point was stressing the importance this system will have going forward," says state CIO Charlie Gerhards.

Like most states, Pennsylvania's system of radio communication had developed in departmental silos, with a range of frequencies and technologies that made communication across departments nearly impossible. In 1996, then-Gov. Tom Ridge saw an opportunity to create a unified system. About \$222 million has been allocated for planning and construction of the system.

The state settled on an 800-MHz digital trunked network using radio technology from M/A-COM, a division of Tyco Electronics. The software-based radio system, called Open Sky, uses technology based on TCP/IP and cellular digital packet data (CDPD), a data transfer technology that moves packets at speeds up to 19.2K bit/sec.

Alcatel's microwave technology is being used to link 250 radio towers across the state into a comprehensive network, a spokesman says. The system will support 25,000 users, but is designed to handle more than 100,000, the state says. The radio channel bandwidth is 20 KHz.

Because it is IP-based, the Open Sky system can carry not only voice, but also data. That means responders in the field can link into legacy mainframes and other information sources, if necessary, Gerhards says. The system also can incorporate global positioning system capabilities and will provide encryption for secure communications.

Pennsylvania now has about 500 state police vehicles equipped with the Open Sky system and expects to have the system rolled out to about 25% of the state agencies by the end of the summer. Final rollout is expected to be completed by year-end.



Former Gov. Tom Ridge launched an upgrade in 1996.

AP PHOTO/IRON THOMAS

— Jennifer Mears

An hour with **Anthony Montemarano**

INTERVIEW

BY CAROLYN DUFFY MARSAN

THE FEDERAL AGENDA

DISA network flexibility targets

The Defense Information Systems Network — the Defense Department's primary transport mechanism for voice, data and video — is one of the world's largest and most complex networks, with a budget of \$750 million per year for terrestrial service. Even though it carries top-secret communications from the battlefields to the White House, DISN is built almost entirely of commercial offerings. Anthony Montemarano, principal director for network services at the Defense Information Systems Agency, spoke recently with *Network World* Senior Editor Carolyn Duffy Marsan about DISN's usage since Sept. 11 and why it's important to couple network management and security. Here's an edited version of the discussion:

What are the responsibilities of the DISA's network services group you lead?

Network services basically provides system management for communications solutions and communications networks supporting the Department of Defense. We do the programming, planning, developing and provide back-up operational support. We don't necessarily watch the networks ourselves: Our operations directorate does that. We provide the support from the systems perspective, the engineering perspective.

Describe the scale of DISN.

DISN is a series of networks. We have unclassified and classified data, voice and video networks, and then supporting those we have transmission infrastructures. These various functional networks ride upon transport derived primarily — well in excess of 90% — from the commercial environment.

Worldwide, we span from as far west as Singapore to as far east as Bahrain. Generally



speaking, we're in the middle belt of the Earth. We don't go into South America and Africa. We're primarily in Europe, North America, the Far East, Korea, Japan, etc. That's all fixed infrastructure. And then, of course, we have these tactical entry points or teleports that can reach into the tactical environments to exploit [government-owned] ... and commercial satellites.

If you're talking in terms of people using DISN, we're in the millions. In terms of services provided, we have some 3,500 separate data connections, whether classified or unclassified. When we provide a connection ... we provide circuit access. Behind that circuit access, there could be 10 users or 100 users or 1,000 users.

We have numerous carriers. In the continental United States we have AT&T, WorldCom and Sprint, primarily, but Qwest is in there as well as the various [local exchange carriers]. We get extensive support from Verizon, PacBell, etc. So we use all the commercial carriers. There are very few places where the government actually owns the wire or the microwave. In Europe, we have a microwave system called the Digital European Backbone. The government owns that.

How much data traffic does DISN carry, and what growth rates are you seeing?

We have two methods of supporting data traffic. First we provide point-to-point circuits to various users. And I'd be hard-pressed to tell you how much of that is data because the user could pass data or voice over it. We just provide the circuit. But we know much of it is data. Then we have IP networks. On the unclassified side, we have 1,500 [connections] with an aggregate bandwidth of some 5,100 megabits per second. On the classified side, we're running about 1,615 megabits per second for about 1,000 connections.

Over a one-year period, [we've seen a] 25% increase in unclassified data while classified data has almost tripled. But understand that during the last year we had something called 9/11. We're finding that the classified side is expanding in its utilization [of DISN]. Prior to 9/11, I ran about 75 to 100 video teleconferences a day and about two



PHOTOS: STAN BAROUH

classified video teleconferences a day. After 9/11, we were doing upwards of 30 to 45 classified video teleconferences a day, so you can see a shift as a result of the trauma of 9/11.

How critical is DISN to the Department of Defense's enterprise architecture, which is called the Global Information Grid?

The DISN makes up the communications component of the Global Information Grid. As people design their infrastructures, by and large ... they'll be designing to ride on the DISN. From that perspective, I'd say it's absolutely critical.

One of the most important things about DISN is that if you know where your infrastructure is and you can see your infrastructure, you can manage your way through problems. You're always going to have problems. If you have 10 wires, one of them is going to break. The challenge is responding to that and managing your way through it. This becomes particularly important ... [because] we no longer have to deal with only outages from disturbances. Now security or information assurance has become a major factor.

With the cyberthreats, you've aggravated your network management problem. It's not a matter of whether a card has failed. You have to see if there's a possibility that someone came in and was able to reach that card and make it fail. Or is somebody overloading that card with traffic. So what's critical is that when you deal with the cyber threats today you have the ability to see what you have out there and to be able to, if you will, fight the network.

During the 9/11 event ... we immediately showed our infrastructure to the decision-makers and said: 'This is what you have and don't have, and this is what's in jeopardy.' It turns out we didn't get hit per se, but we had to move some of our infrastructure in that component of [the Pentagon] because it was in jeopardy. Because we could see it and we knew what it was, we could manage it. We knew how much trouble it was in and we could manipulate it. As a result, we had very little impact to our infrastructure. Nobody lost service.

From your experience with DISN, what advice can you offer about managing large, complex networks?

What we've done is take our network management tools and focused them in a central, global network operations security center and then sat our security tools right next to them. The Department of Defense's security structure has a joint task force with computer network operations. They sit side by side. So when we deal with network infrastructure challenges ... not only do we have the guy or gal that understands the boxes out there and the manner in which [the network components] might fail, we have people that understand security and the potential for attacks that are being waged. And we have the various sensors and the like that we deploy. That synergy is absolutely incredible. It was effective during the Code Red attack.

My advice to corporate network managers is, if he doesn't have his information assurance folks or his security folks sitting side-by-side with his network operations then he's missing the mark. Especially if he's in any way dependent on the Internet for business because that, of course, is the primary path by which attacks can be made. Cyber attacks are sinister. When your packet loss begins to rise, it normally doesn't show up on a screen. The screen's still green, but the fact is there's packet loss, and the user is failing to get the traffic through. That's not obvious. Performance management and network management have to be one.

What do you see as the most promising network technologies on the horizon for DISA and why?

Convergence technologies that allow us to bring voice, data and video together. We're converging at the desktop, and we in the wide area can't avoid that. We also have to deal with the cultural challenges — not only the technical challenges — of bringing voice and video together in the wide area because the engineers and operators look at different things, manage it differently and are not sensitive to each other's needs. The data world has gone to extraordinary extremes to deal with security. Voice has never had to do that. It's just so easy from a PC at home to do something to a data environment, whereas you had to be a little more sophisticated to take a shot at a 5ESS. So coming to grips with that and getting the two cultures to deal with each other is a challenge.

What do you see as DISA's major challenges related to its network infrastructure, and how are you addressing these challenges?

One of the largest challenges we have, which I would argue anybody would have, is configuration management. As much as you try to do it, you don't get it right and you always have these weaknesses. Configuration management and troubleshooting are dependent on databases, and databases are always rife with challenges, errors and the like. We've deployed an integrated network management system that has helped us see across layers from the functional layer to the physical layer. But in helping it also magnified the configuration management challenge because it's reliant on the configuration management processes of an IP infrastructure and a voice infrastructure. Well, you think those two configuration management databases were built the same way? Of course not, so we're trying to bring them together.



“My advice to corporate network managers is, if he doesn't have his information assurance folks or his security folks sitting side-by-side with his network operations then he's missing the mark.”

How has your view of managing the Department of Defense's network infrastructure changed since Sept. 11?

For us, the war is still on. We feel very, very strongly, and consequently we are enormously focused on the battlefield and our support for the battlefield. So post-9/11, the fact of the matter is our operators, our network managers, our provisioning processes — all are focused with much greater intensity on supporting what is in Southwest Asia. Being extra sensitive to any anomalies that are detected so as to respond quickly. That's probably the main change.

What lessons have you learned about DISN in the ongoing Afghanistan operation? And how might DISN change in response?

Because of our bandwidth increase going into Southwest Asia, we're heavily dependent on commercial satellite solutions. So our ability to get transponders quickly has served us well. An after-action report is going to be: As soon as you smell anything happening, go after transponders. We've been able to get the capacity we've needed, but of course this is an extremely expensive proposition for us.

We also validated that video teleconferencing is a command and control system. It is not administrative in any sense of the word. The services and agencies have come to grips with the fact that sitting there, seeing somebody, seeing their body language is almost as important as hearing their words. ■

PROFILE: ANTHONY MONTEMARANO

Title:	Principal Director, Network Services
Organization:	Defense Information Systems Agency
Responsibilities:	Engineering, planning and systems management for the Defense Department's WAN infrastructure.
Annual budget:	\$875 million, including \$750 million for the DISN
Staff size:	500, primarily civilian
Previous jobs:	A retired naval aviator, he joined the Defense Communications Agency, later renamed DISA, in 1989. In 1991, he was a sector leader of the DoD Data Task Force that formulated the concept for the DISN. He helped deploy the Secret Internet Protocol Router Network, a classified government intranet, and its unclassified counterpart called NIPRNET.
Education:	Bachelor's degree in Aerospace Engineering from Polytechnic Institute of Brooklyn, Master's degree in Systems Management from University of Southern California.

Go online for the unabridged version of Montemarano's Q&A. www.nwfusion.com, DocFinder: 1130



Web shutdown cripples Department of the Interior.

'NET DISRUPTION

BY JOHN FONTANA

THE FEDERAL AGENDA

'Net access denied

Early in November last year Mike Miller, the chief of financial management for the Minerals Management Service bureau within the U.S. Department of the Interior, began basking in the glow of the bureau's new Internet-based accounting system.

The glow quickly faded to gloom.

A month later, the system, designed to audit and track \$300 million worth of oil, gas and coal royalties and land rental fees collected and dispersed by the bureau each month, was disconnected from the Internet under court order. After 18 months creating the new system, online operations at MMS ceased.

"We reorganized our processes and computerized our accounting system to be totally reliant on the Internet," Miller says. "Everyone from outside [the bureau] has to come in through that portal." MMS was offline for four months, costing the bureau untold millions, including \$3 million alone for consultants who stood around until the

Internet link was restored.

The most frustrating issue was that MMS was knocked offline not by its own actions, but as part of the fallout of a 6-year-old class-action lawsuit over mismanagement of American Indian trust funds. The suit was brought by American Indians against the Department of the Interior (DOI), which oversees the Bureau of Indian Affairs (BIA), MMS and six other bureaus (see timeline, below).

The case found that \$10 billion in American Indian trust money was unaccounted for, mostly because of poor record-keeping and computer systems.

On Dec. 5, 2001, a court order forced the DOI to unplug from the Internet all systems that house Indian trust data, pending an evaluation of BIA's computer security, which had been repeatedly criticized in government reports and was easily hacked during an independent audit.

Six months earlier, then-BIA CIO Dom Nessi publicly admitted that his department had no real security, no firewalls and potentially could be hacked by a high school student.

Not knowing exactly which systems housed American Indian trust data or had access to that data, DOI disconnected from the Internet BIA and seven other bureaus, including MMS, the National Park Service and the Fish and Wildlife Service.

The fallout would bring home important lessons to all the DOI bureaus: Lack of security did have devastating consequences and the Internet had become entrenched in government operations.

The fallout

"We can't do business anymore without the Internet," says Dave Barna, public affairs officer with the National Parks Service. "It's so important; we can't do our jobs without it."

Once disconnected, MMS and every other DOI bureau entered a time warp that transported 71,000 employees and a Web-savvy public to pre-Internet days. Each bureau

Path to a shutdown

1987

Federal law makes the U.S. Government responsible for collecting fees from anyone who uses tribal land, with the fees to be held in a trust fund.

December 1999

Federal Judge Royce Lamberth rules the government has breached its trust fund responsibilities to American Indians. The government's appeal fails in February 2001.



Dec. 5, 2001

Lamberth issues temporary restraining order requiring DOI to disconnect from the Internet all systems that contain Indian trust data until security safeguards are installed. DOI disconnects its eight bureaus pending data audit of all servers and PCs.

August 2001

Department of the Interior/BIA Internet infrastructure hacked as part of audit by Predictive Systems to document lax security.

Feb. 11, 2002

National Park Service gets preliminary approval to go back online.



May 8, 2002

Office of the Secretary of the Interior gets preliminary approval to go back online.

April 26, 2002

BIA gets permission to deploy 100 stand-alone PCs with Internet access to support the bureau's fire program.

Dec. 23, 2001

Court clears DOI request to reconnect Law Enforcement computer system as matter of public safety.

Dec. 8, 2001

Lamberth approves U.S. Geological Survey reconnection to the Internet, including its Wildland Fire Management Web site, as matter of public safety.

Jan. 22, 2002

Office of Surface Mining gets preliminary approval to go back online.

March 20, 2002

• Minerals Management Service gets preliminary approval to go back on-line.
• U.S. Fish and Wildlife gets preliminary approval to go back online.

November 2001

Lamberth orders Interior Secretary Gale Norton and Assistant Secretary for Indian Affairs Neal McCaleb to stand trial for contempt, citing their inability to clean up the trust fund problem. Case ends in April 2002, but decision is pending.



Gale Norton,
Interior Secretary

June 1996

Class-action suit filed by Elouise Cobell, a member of the Blackfeet tribe, against Bureau of Indian Affairs over mismanagement of trust fund. Suit seeks accountability for \$10 billion in lost funds and to force permanent reform of the system.



became an island, unable to share data electronically with other bureaus or the public. Employees' electronic time cards could not be filed because the DOI's National Business Center (NBC), which processes approximately \$9 billion in payroll each year, also was disconnected.

"We decided to install a dedicated private line to NBC to restore our connection," says Shane Compton, deputy CIO of information resource management for the Fish and Wildlife Service.

The fax machine and telephone became the Band-Aids of choice to resume communication, which was now laborious. Bureaus had e-mail internally, but were cut off from the outside world. Some bureaus had access to their intranets, others did not. The public could no longer use Web-based DOI services, such as the National Park Service's site for reserving campsites in its 385 parks.

The ironic twist was that some American Indians, who for years had questioned the integrity of a system to collect money on their behalf, saw their payments lapse or severely delayed until some order was restored.

"We are still scratching our heads over why it got so screwed up," says Ray Bjorklund, vice president of consulting for Federal Sources, a market research firm covering the federal IT market.

Observers also are scratching their heads over how DOI, which has received \$2.3 billion in IT budget money since 1999 and has an IT staff of 2,272, could not muster the resources to correct no-brainer security holes at BIA, such as lack of firewalls or blank administrative passwords.

Alan Balaran, appointed by the court as special master to oversee the DOI shutdown, said in status reports to the court that the problems simply had been "institutionally ignored" and that DOI had a "disgraceful legacy" of protecting American Indian trust data.

Trying to cope

In the aftermath, the court quickly allowed some systems and bureaus, such as the U.S. Geological Survey (USGS), which provides earthquake and natural disaster data, back online, citing national safety concerns. Ditto for law enforcement systems used by DOI, which has jurisdiction over 22% of the nation's landmass, and the Wildland Fire Management System.

But most bureaus were disconnected for three to four months, and are still calculating the financial impact.

BIA is still offline (as of July 2). The Secretary of the Interior's office was offline until early May. In the interim, staffers went to other bureau offices in DOI's Washington, D.C., headquarters to send or receive e-mail.

To get back online, IT executives at each bureau had to certify that servers and PCs did not house or have access to Indian trust data.

The USGS certified 2,200 servers.

"In the first few days we did certifications on over 1,000 servers," says Anne Frondorf, deputy geographic information officer. "The people in the field offices were working into the wee hours of the morning."

Without the benefit of the Internet, USGS created a form and faxed it to each office.

IT administrators documented the servers and their data then faxed back the forms. The box of documents was carried to the court.

The effort taught Frondorf a few things. "We have a lot of servers out there. We are now trying to maintain a more comprehensive database of those resources."

At the Bureau of Reclamation, the country's largest wholesaler of water, Kathy Gordon, CIO, says the organization created forms to record water data, printed them out and faxed them. The information is critical to dam operators who expect the real-time data to regulate water flow and avoid floods.

The National Park Service Web site, which gets a million hits per day, went dark to the public as it tried to certify its 1,327 servers.

INTEGRATION

Government portal effort is a lesson in data integration

What do the river rapids of Colorado's Gunnison Gorge, hiking trails in West Virginia's Monongahela National Forest and wildlife viewing areas in Arizona's Coronado National Memorial have in common?

Information about all those recreational facilities is being pulled into a portal Web site called Recreation OneStop under development by the federal government as part of a plan by President Bush to create efficiencies in government and make it more accessible by the public.

While it sounds good on paper, behind the scenes the technical difficulties of pulling data together from so many diverse sources are proving to be a challenge.

"The challenge is integrating the resources, people and IT systems that the various agencies already have in place so it appears seamless to the fisherman who wants to find that perfect spot," says Scott Cameron, deputy assistant secretary for performance and management at the Department of the Interior (DOI), which is leading the Recreation OneStop initiative.

Cameron has a yearly budget of \$1.5 million to meet the challenge.

Recreation OneStop's mission is to create a database of recreational information, maps and reservation services for parks, museums, forests, lakes, historic sites and urban parks run by federal, state and local governments. The effort builds on the 4-year-old Recreation.Gov Web site, a directory of about 2,200 federal recreational facilities.

"How do you build data standards is our big question," says John Mahoney, project manager for Recreation OneStop, which combines the work of 10 federal agencies and soon will include state and local governments.

"XML is a godsend for keeping data structured," says Keith Stewart, Web application developer for Recreation.Gov. "We used XML to import data from their database to our database."

Stewart also is creating a template that includes nearly 40 data fields needed for Recreation.Gov listings, such as addresses, phone numbers and available activities.

These first steps should be rather simple, Stewart says. But the next ones get more difficult as maps are incorporated and Recreation.Gov starts to transform into Recreation OneStop.

"There is a big issue around how do we take on Geographic Information Systems and geospatial information. It is very data intensive," Stewart says. Plans to solve the issue are still in the works, he says.

— John Fontana

BELTWAY CONFIDENTIAL

Federal agencies have spent the past two years considering how to move 6,600 types of paper-based transactions online, but only hundreds are online today, according to the Office of Management and Budget.



"People looking for seasonal jobs couldn't get to our systems. We fell behind on hiring," NPS' Barna says. "We contract yearly for \$120 million worth of work in parks. We pay those contracts electronically, now we had to do it manually. It cost us overtime."

But it was MMS that truly suffered and, in turn, so did American Indians.

With no accounting system, MMS had no way to track the 70,000 leases or audit 200,000 transactions per month it makes for state governments, 20,000 American Indian land owners and 41 tribes that own the land where natural resources are mined. Money flowed in and out unchecked. MMS sent out \$202 million in four months to benefactors based on historical averages to avoid having to pay interest fees on late payments.

A four-month backlog is now being processed, which will be followed by an audit of payments made since the shutdown.

Part of the money was handed over to BIA, but MMS could not include an accurate accounting of which people or tribes were entitled to what portion of the money.

"There were some workaround solutions, and trust payments were being processed manually," says Geoffrey Rempel, an assistant to Dennis Gingold, attorney for the plaintiffs in the case.

In all, the government and public learned that the Internet has become an inseparable part of its operations.

"In 700 field offices, hours were spent at the fax machine," says Mitch Snow, public affairs officer for Fish and Wildlife. "You lose site of just how important your Internet-based systems are."

And the shutdown confirmed what the government's General Accounting Office said in a Nov. 9, 2001 report to a congressional subcommittee: "We have reported that poor information security is a widespread federal problem with potentially devastated consequences." ■

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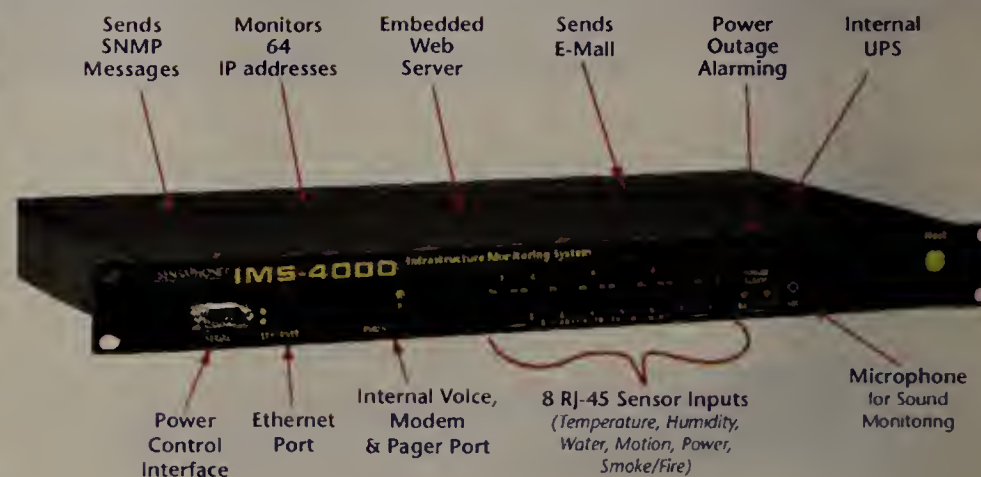
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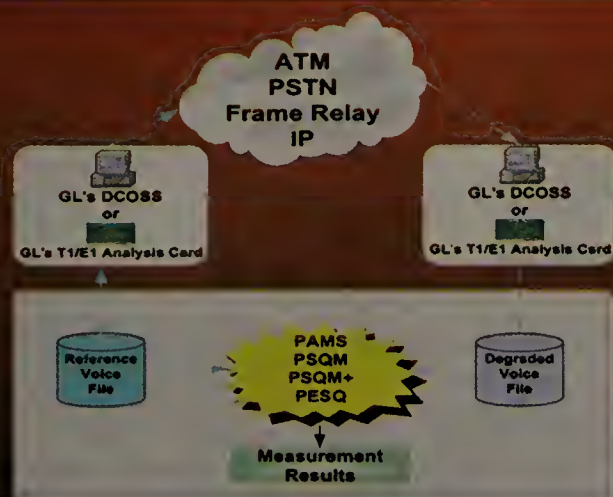
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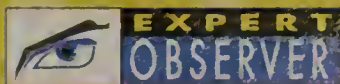
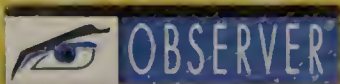
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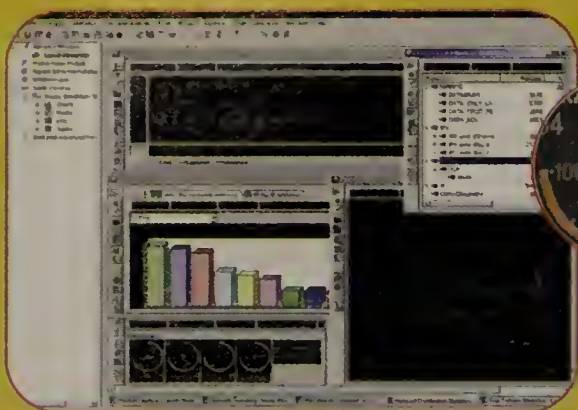
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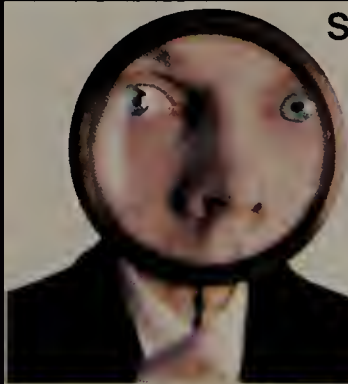
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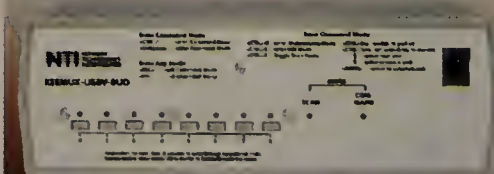


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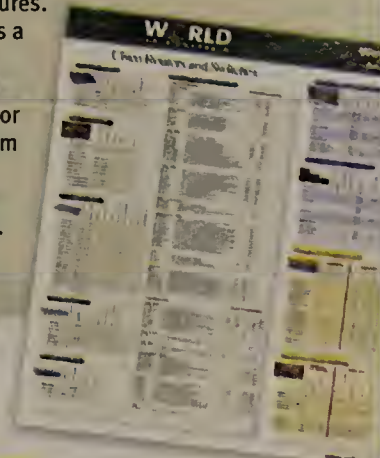
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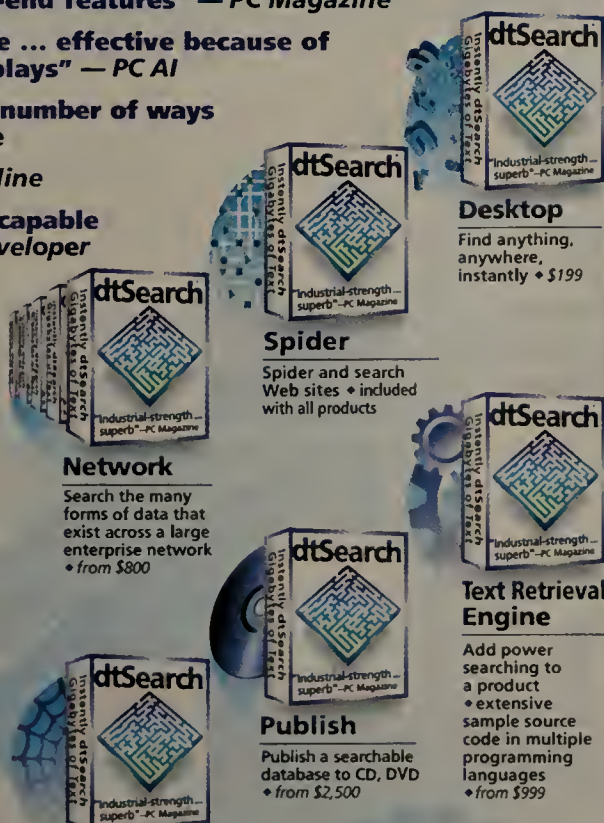
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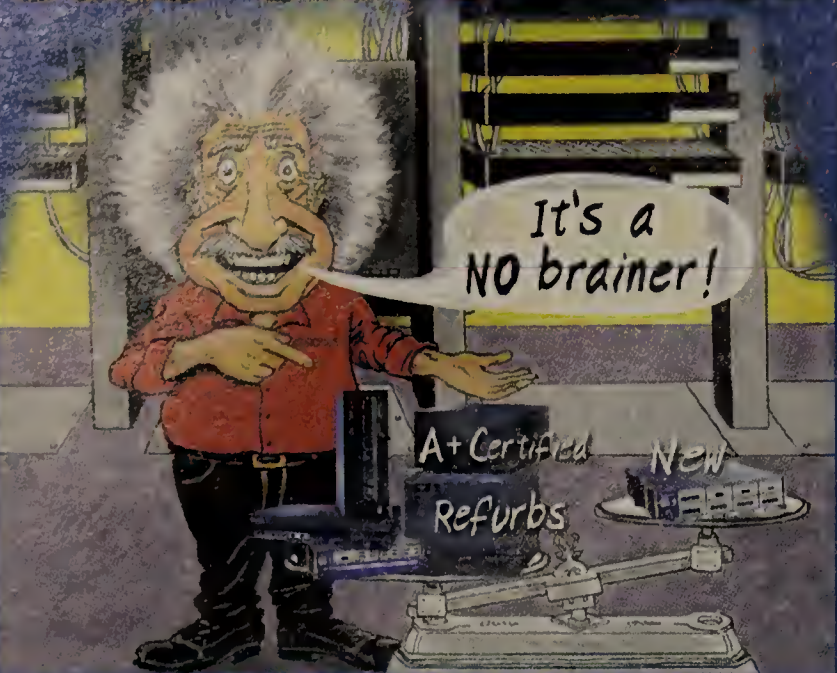
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Software Engineers, Dallas, TX.
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Multiple positions-Software Engineer wanted w/BS & 2 yrs. Exp. in Houston, TX. Send resume to: HR Dept., Scicom Americas, Inc., 1500 S. Dairy Ashford, Ste 241, Houston, TX 77077.

Scholle Corporation located in Elmhurst, IL requires Systems Analyst to develop, test & implement systems in packaging industry using Visual Basic & XML. Requires BS Computer Sci, Engineering or related field + 4yrs exp. Respond to: C. Ther, Scholle Corp., Ste 300, 360W. Butterfield Road, Elmhurst, IL 60126.

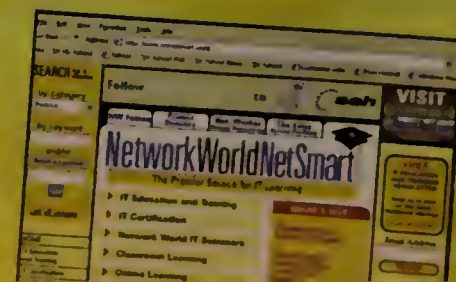
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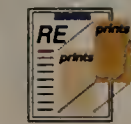
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BackSpin Mark Gibbs



RIAA: Licensed to hack?

Last October I chastised the Recording Industry Association of America in this column (www.nwfusion.com, DocFinder: 1135) for trying to get legislation passed that would protect its members against liability for damage to data or services incurred while protecting copyrights through what were essentially hacking techniques.

Well, that attempt died a quiet and unmourned death, and I had hoped that would be that.

But no, the RIAA has recently persuaded California Congressman Howard Berman — whose district includes Hollywood (surprise) — to create a bill that would provide shelter for copyright owners such as record labels and movie studios against liability for action they take to stop peer-to-peer Web sites from enabling illegal file-sharing (DocFinder: 1132).

"While P2P technology is free to innovate new, more efficient methods of P2P distribution that further exacerbate the piracy problem, copyright owners are not equally free to craft technological responses," Berman said in a speech last month. "Congress should free copyright creators and owners to develop and deploy technological tools for addressing P2P piracy. We could do this by creating a safe harbor from liability for copyright owners that use technological means to prevent the unau-

thorized distribution of their copyrighted works via P2P networks."

Copyright holders under Berman's bill would be allowed to undertake various countermeasures, including interdiction — swamping a supposed P2P file server with false requests so that downloads are slowed or stopped; redirection — pointing supposed file swappers at servers that don't contain the files they're looking for; and spoofing — providing corrupt or otherwise undesirable files in place of whatever file is trying to be swapped.

That's all well and good. After all, the copyright holders are protecting their own rights aren't they?

Ah, but notice my use of "supposed" — this was not for mere decoration. Oh no, because if the copyright holders make a mistake under this ill-conceived bill, they won't be held liable, will they? Oh, I know that Berman has said that "such legislation must be narrowly crafted, with strict bounds on acceptable behavior by the copyright owner ... [and should also] provide for strong penalties against abuse of the authority provided by the safe harbor."

But can't you just see it? You're getting ready for work one morning. The birds are singing, you're on time, the coffee's just finished brewing, and as you step out of the shower your home phone rings, your cell phone rings and your pager goes off. The messages from the office all say the same thing: "We have

a fraction of our Internet access bandwidth left, hardly any e-mail is getting in or out, our Web servers have crashed, the FTP server got wiped clean and what are you going to do about it? Now."

Your day has turned into a living inferno. Twenty-four hours later you've got a splitting headache and raging indigestion. You're exhausted, strung out on stale coffee, sweaty and greasy, short-tempered, and talking to some geek from the RIAA's hit squad.

"Sorry" he says, "I guess we got the wrong IP address ... We took out your servers? Oh. Sorry."

Just try to take 'em to court.

But eventually — and at great cost — enough consumers and businesses will have been erroneously hit. A class-action lawsuit will emerge to waste everyone's time and money, only to wind up at the Supreme Court, which will say the bill was stupid as it contravened this, violated that and rode roughshod over the other. Then it will be back to the drawing board for the RIAA and its band of merry men having made everyone's life just that little bit harder.

This kind of legislation is plain crazy. At best it is ill-conceived and shortsighted. At worst, it is irresponsible and unethical. And it could pass this time. So tell Berman — howard.berman@mail.house.gov — how wrong his thinking is.

Cries of outrage to backspin@gibbs.com.

'Net Buzz News, insights, opinions and oddities



By Paul McNamara

Readers get their turn at bat

Time for another round of reader e-mail ... and I swear not a blessed one of them will be about that Hewlett-Packard television commercial.

An item in which Buzz bellyached about the likely costs associated with all of the online privacy legislation floating about generated this gentle rebuke:

"I found your column on privacy readable but misguided," writes Jim McQuaid, who knows how to be polite yet pointed. "Anytime we view our rights as 'inconvenient' or 'expensive' we have just put a price on freedom and gotten ready for the auction. ... Getting spam is really not the worst outcome in the world, I admit. But marketing to children generally is totally out of control in our society. ... Yes, we will all pay. And yes, egregious and frivolous economic impacts need to be considered [this is not unique to this issue]. But it will be worth it to preserve our liberties."

An item ridiculing a Minnesota court ruling that appeared to require the presence of a police officer any time an ISP went about finding information demanded by a warrant generated this comeback from a former lawman.

"I would want to be there to be sure [the ISP is conducting a legitimate search] and not just telling me it looked and didn't find anything," writes Rick Godin. "I'm sure that Yahoo and others don't want to incur the cost of overtime pay for their employees to be involved in time-consuming and expensive searching. I guess another option would be to seize the ISP's equipment and return it after a thorough independent search was completed. Given the choices, I'd opt for the flatfoot."

Well, if you put it that way, me, too.

Mike, who asked that his last name be omitted, wrote to question the wisdom of my publishing an item about a technique that is apparently being used by spam-

mers to fool spam filters: inserting random gibberish — snippets of nursery rhymes, for example — into the text of the message.

"Yes, I was interested to see your tidbit about a potential way around spam filters, but I found it much more bothersome that you may indeed be helping spammers. I really don't want clever ideas spread around spammers."

It's tough to write about such a subject without running that risk, of course. And I'm not sure too many spammers are turning to *Network World* for tips anyway.

Few subjects generate more reader reaction than online taxes.

"In regards to comments about taxing online sales — I don't really understand tax law too much, but I do know that our organization is required by our state [Nebraska] to pay 'use tax' on purchases we make where we didn't pay Nebraska sales tax," writes Scott Matthews. "I would guess that the people complaining about a potential online sales tax are not paying the taxes they already owe."

Good guess.

An item about a vendor's public relations stunt that was built around the self-serving question — "How big is 2 to the 104th?" — prompted this bit of one-upmanship.

"Try the largest number that can be represented by the digits 0 through 6," writes Dave Corbin. "It's 2(3(4(5(6(10))))). It has 10(56) digits, approximately. At 1 digit per 16th of an inch, the piece of paper would cover the spherical universe as far as Hubble can see. You can prove the last digit is 2, by the way."

My calculator is broken, so feel free to check the guy's math.

And, finally, we have this nice note.

"I enjoy reading your column, particularly your reports on the e-mail you receive," writes John Wyman. "People are wonderful in their ideas, complaints, etc. ... P.S. I like the technology items in your column, too."

Please don't disappoint Mr. Wyman. Send your comments to buzz@nww.com so we can do this again sometime.

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